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ABSTRACT

The system of higher education of the German Democratic Republic is described. Information on the different kinds of colleges--universities, university colleges, and engineering and technical colleges--is provided, including admission procedures, course objectives, course content and structure, further education, paths leading to the award of higher academic degrees, types of academic degrees awarded, training of foreign students, research at higher education institutions, the role of the library in the tertiary education system, senior academic staff, junior members of academic staffs at universities and university colleges, and college lecturers. Additional topics include: the integrated system of state administration, the administration of universities and university colleges, the administration of engineering and technical colleges, and international cooperation by universities, university colleges, and technical colleges. Appendices include diagrams of: the Integrated Socialist Education System, the routes to technical education, and the administrative structure at a university. Also appended are timetables for the curricula of livestock farming and technology of metal processing, and a list of higher education institutions. (SW)

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MONOGRAPHS ON HIGHER EDUCATION

Higher Education in the German Democratic Republic

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Higher Education in the German Democratic Republic

by : H. J. SCHULZ

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PREFACE

This present volume represents a further addition to our series on European systems of higher education. It underlines the uniqueness of the system of higher education of the German Democratic Republic. Many of the existing institutions in the country had been destroyed or severely damaged during the war. The teaching, research, and administrative bodies required an almost complete reconstruction. Under such circumstances, the task at hand was not only a challenge in every way but an opportunity to further develop, from a Humboldtian structure, measures which are socially innovative. In this respect, new forms of training and teaching were set up, such as extra-mural, correspondence, and continuing education courses, as well as, more recently, university courses for retired people. Also, parallel to traditional university training, the GDR system of higher education succeeded in providing opportunities for young people with work experience to graduate in academic disciplines.

We are very much indebted to the author, Professor Schulz, for having undertaken the audacious and difficult task of describing the system of higher education in the German Democratic Republic while respecting the general outline of this series of monographs and by accepting to limit himself to a concise, informative text which nevertheless brings forward the most salient features of higher education in the GDR.

The linguistic editing has been accomplished by Leland C. Barrows.

W. VOLLMANN
Editor

AUTHOR'S NOTE

In writing several chapters of this book, the author drew on the works of Heinz Haas (Chapter 3), Heinz Kutzer (particularly sections 22.2., 8.3., and 10.3.), Hans-Joachim Richter (Chapters 4 and 8) and Norman Werschky (Chapter 5). With their kind permission he has borrowed extracts from their writings quoting some in their entirety and abridging, completing, or adapting others.

All statistical data are based on the figures published in "Statistische Jahrbücher der DDR" (Statistical Yearbook) and "Hochschulen und Fachschulen in der DDR — Statistischer Überblick 1980" (Universities and Technical Colleges — AStatistical Overview), printed by the Ministry of Higher and Technical Education.

The author would also like to express his thanks to Mr. Øfjord, former Director of the European Centre for Higher Education of Unesco, in Bucharest, for his advice and valuable suggestions.

Prof. H. J. SCHULZ

1. UNIVERSITIES, UNIVERSITY COLLEGES, AND ENGINEERING AND TECHNICAL COLLEGES IN THE GDR : THEIR RESPECTIVE POSITIONS IN THE INTEGRATED SOCIALIST EDUCATION SYSTEM

Universities, university colleges (Hochschulen), engineering and technical colleges (Ingenieurschulen und Fachschulen) constitute the institutions of tertiary education in the German Democratic Republic (GDR). They may be grouped into two divisions. Universities and university colleges provide education at the highest level, i.e. higher education, within the integrated socialist education system. They are eminent centers of learning, research, education and culture. Their responsibilities include the training of specialists for all spheres of society, the provision of continuing education and postgraduate education, including further training as part of their academic careers for employed graduates as well as for graduates or young academics at higher education institutions.

In addition, the institutions of higher education also have a major social responsibility for the advancement of knowledge and for furthering scientific and technological progress by means of their own research. Priority is given to basic research, in the investigation and solution of current social, economic, cultural and ideological issues and in the preservation and continuation of progressive academic and cultural traditions as applied to modern science and culture. Accordingly, these institutions work for the expansion of international scientific co-operation in order to ensure a peaceful and prosperous future for the people of this country and for mankind.

Compared with the universities and university colleges, the engineering and technical colleges provide instruction of a more practical orientation for students who seek to acquire specialized knowledge in the natural or social sciences, technology, economics and similar fields through course work of a shorter duration. Like the universities and

university colleges, the technical and engineering colleges play an important part as centers of intellectual and cultural life in the areas they serve.

Some of the universities and university colleges have long and event-filled histories, e.g. the Karl-Marx University in Leipzig, whose origins go back to the year 1409, the Wilhelm-Pieck University in Rostock, originating in 1419, and the Ernst-Moritz-Arndt University in Greifswald originating in 1456. These were followed by Wittenberg, founded in 1502, which was later merged with Halle University, established in 1694, to become what is presently known as the Martin Luther University of Halle-Wittenberg, and the Friedrich Schiller University in Jena which had its origins in 1558. The Humboldt University in Berlin, going back to 1810 with Wilhelm von Humboldt being one of its prominent initiators, became the leading university in Germany in the course of the 19th century.

Due to specific historical conditions, education in technological disciplines and in mining developed up to the middle of the 20th century in special institutions outside the universities. The Mining Academy in Freiberg, founded in 1765, is the oldest mining college in the world. The present day Technological University of Dresden, founded as a technical education institution in 1828, soon reached international significance as one of the leading technologically oriented education establishments.

The work of many scholars of world reputation, the dedication of many humanist and democratically minded academics and students and their struggle against orthodoxy, conservatism, and the forces of reaction made essential contributions to the attainments of the institutions of higher education in science as well as in human culture.

In addition to such polytechnical institutions as there were in Dresden, numerous technical schools were founded especially at the end of the 18th, and in the first third of the 19th century. Stimulated by the increasing needs of industry and trade, these technical schools developed from former vocational schools (Gewerbeschulen), specialized in mining, civil engineering, agriculture, spinning and weaving, and other vocational activities.

Such technical schools, especially the schools of mechanical engineering, founded after 1870, and the later higher technical schools, trained specialists for the different fields of industry and agriculture.

The ones which were best known beyond Germany's frontiers included the schools of civil engineering in Leipzig, Plauen, and Dresden, the vocational academy in the former Chemnitz, the knitting school in Limbach-Oberfrohna, the technical schools in Ilmenau and Mittweida, the mining school in Zwickau, and the school of mechanical engineering in Magdeburg and Görlitz.

Fascism dealt deep mental and material wounds to the development of universities, higher education institutions, and technical colleges. Fascist higher education policies not only caused a decline in higher learn-

ing but ultimately resulted in the destruction of educational establishments and research institutions. After the liberation of Germany from Fascism, the antifascist-democratic forces were confronted with the pressing need to lay the ideological, political, economic, and cultural foundations for the revival of the universities, higher education institutions, and technical colleges within a framework of revolutionary social change, to re-open them as antifascist-democratic educational establishments.

Consequently, a new system of tertiary education emerged, the result of a development which extended over three decades, beginning after 1945 with the antifascist and democratic reform of all tertiary education institutions, continuing with the Higher Education Reform of the 1950s, and leading eventually to the Third Higher Education Reform of the late 1960s.

The institutions of the system as they exist today are open to the working class as well to the sons and daughters of all working people. The educational privileges of the possessing class were abolished once and for all ; the basic right to education has gradually become a reality. As early as 1954 more than 53% of the students at institutions of higher education came from workingclass and peasant homes. Since that time the proportion has remained constant at approximately 55%.

The introduction of the Integrated Socialist Education System, initiated by the Socialist Unity Party (SED) in 1963, was an important outcome of the support given to science and education in the German Democratic Republic. In February 1965 following a public discussion which had lasted several months, the People's Chamber, the GDR Parliament, adopted a new Education Act which is still valid. It provided for a system of tertiary education which was to contribute significantly to the political, economic, scientific, and cultural growth of the country, with teaching and research playing a key role.

Table 1

Evolution of student enrolments at universities, university colleges, engineering and technical colleges (excluding postgraduate students engaged in research)

		Universities/Colleges		Eng./Tech. Colleges	
Year	Total	Total	Full time stud.	Total	Full time stud.
1951	66.210	31.510	27.820	34.700	34.700
1955	145.350	75.080	60.150	85.200	49.100
1960	225.880	99.860	73.000	126.020	47.260
1965	225.210	111.590	74.550	113.620	50.780
1970	310.320	143.160	99.920	167.160	62.800
1975	293.230	136.850	103.080	156.380	84.180
1979	298.660	129.050	104.330	169.610	100.890
1980	301.860	129.970	105.900	171.830	102.550
1951 = 100					
	456	412	381	495	296

9

Table 2

Evolution of the number of tertiary education graduates per thousand including their proportion to the number of employed people (per 1,000)

Higher and technical education graduates				Proportion per 1,000 employed		
Year	Total	Higher	Technical	Total	Higher	Technical
1960	362.5	129.9	232.6	60.8	21.8	39.0
1965	519.9	186.1	33.8	85.7	30.9	54.8
1970	717.3	261.5	455.8	107.4	39.2	68.2
1975	1,119.2	398.9	720.3	141.3	55.3	86.0
1980	1,412.2	500.7	911.5	188.0	66.0	122.0

Currently about 30% of those in the relevant age group (age participation rate) are admitted to full-time and correspondence courses at institutions of tertiary education. The number of people with tertiary education qualifications will increase.

Higher education courses are presently offered at 53 * universities and university colleges. Among them are six universities and one technological university, seven university colleges of technology and ten university-level engineering colleges (Ingenieurhochschulen), three separate medical schools (medizinische Akademien) which operate at the university level, two university colleges of agriculture, one university college of political science and law, nine university colleges of education, eleven university colleges of arts and culture, and one university college of physical culture and sports.

The engineering and technical colleges totalling 236 institutions meet the requirements of the national economy. They include :

— 54 engineering colleges catering to industry, construction engineering, transport, postal services, and telecommunications ;

— 38 agricultural engineering colleges catering to agriculture, forestry, and the food industry ;

— 7 colleges of economics ;

— 63 medical colleges ;

— 51 colleges of education ;

— 12 colleges of arts and culture ;

— 8 colleges of librarianship, archive science, and museum administration.

The universities university colleges, engineering and technical colleges base their work on the standard attained by the other sectors of the integrated socialist education system. The core of the system is the ten-year secondary school which provides polytechnically oriented general

* Excluding the tertiary education institutions of social organizations and of the armed forces.

education for all children. Although all children are given education of equal quality, that which is provided by the ten-year secondary school forms the basis for vocationally oriented specialized education and life-long education in general.

In the GDR, compulsory schooling extends over a period of ten years. According to the constitution, it is both a right and a duty of young people to undergo vocational training. By 1975, the process of generalizing secondary education for everybody has been completed.

Post-compulsory education, as the next stage, is subdivided in a way that makes higher education available to every citizen, depending upon his performance and aptitude, immediately after completion of secondary school as well as at later stages in his career. There are three principal ways of acquiring post-compulsory education i.e. by enrolment in (1) a course of vocational training which normally lasts two years and may be provided at one of the local vocational schools (Berufsschule) or at an institution of equal level attached to a factory or some other kind of organization ; (2) a course at one of the medical, arts, or education colleges extending over three or four years ; (3) a two-year course at an extended secondary school leading to the university entrance standard (Abitur).

In addition, a combination of two of these course types, i.e. a three-year course of vocational training plus pre-academic education (Berufsausbildung mit Abitur) also qualifies one for university entrance. It is provided through special classes set up in vocational schools.

There is an extensive network of vocational counselling and career -- advisory services provided by governmental institutions in cooperation with factories, educational establishments, and other organizations. These services provide young people and parents with information concerning career prospects. They help young people discover their vocational interests, and they give guidance on the choices of particular careers in accordance with individual talents, abilities, and intentions, and with the social requirements deriving from the structural development of the national economy.

Courses at engineering and technical colleges concerned with technological and economic subject areas base the instruction which they offer on vocational training plus, usually, one year of practical work.

An extensive and differentiated system of preparatory courses for university-level studies guarantees that all qualified citizens, especially those of working class origins, will have access to higher education.

In this context, the comprehensive and efficient system of correspondence and part-time evening courses at the tertiary level should be mentioned. Ever since it was set up in the early 1950s, the system has enabled many citizens to attend and complete courses of higher as well as technical education in a wide range of subject areas while simultaneously being employed. Thus, one out of five currently employed higher or technical education graduate in the GDR obtained his or her qualification by correspondence. And it should finally be added that the insti-

tutions of higher and technical education offer a large number of further training courses particularly for holders of qualifications taken from such institutions.

The following table illustrates the growth and the differentiated development of tertiary education.

Table 3

Development of student enrolments in tertiary education in five-year periods

Number of entrants

Period	Total	Full-time	Part-time
1961—1965	258,970	174,130	84,840
1966—1970	329,820	219,640	110,180
1971—1975	418,380	278,320	140,060
1976—1980	436,410	304,670	131,740

Since investigations have shown that members of the same age group enter correspondence courses, approximately six to ten years later than those taking full-time courses the correspondence course entrants in the period from 1971 to 1975 should belong, as a rule, to the very age group from which full-time entrants came in the period from 1961 to 1965. Thus it is possible to conclude that about 32% of the age group from which full-time tertiary education students recruited between 1961 and 1965 made use in one way or another of tertiary education offerings.

Table 4

Pattern of entries into tertiary education (higher and technical) according to subject areas and modes of study (excluding post graduate research students) in 1978

Subjects	Higher education			Technical education		
	FT	C/E	C/E(%)	FT	C/E	C/E(%)
Maths/Nat. Sciences	1,715	—	—	—	—	—
Technology	8,473	859	9.2	7,711	5,825	43.0
Medicine	2,341	—	—	13,773	1,727	11.1
Agrarian Sciences	1,567	199	11.3	2,445	1,021	29.5
Economics	3,408	1,055	23.6	3,680	6,851	65.1
Social Sciences	1,965	853	31.4	431	415	49.1
Education	6,398	220	3.3	5,851	1,101	15.8
Arts	651	174	21.1	374	38	9.2
TOTAL	26,418	3,360	11.3	34,265	16,978	33.1

NOTES : FT = full-time courses C/E = correspondence and evening courses
C/E(%) = percentage of correspondence and even courses entries in total

As one can conclude from Table 4, the socialist education system of the German Democratic Republic guarantees that the *right to education* is put into practice. Every citizen regardless of race, social origin, position, income, world outlook, religion or sex has an equal right to education because the political, social, and economic order makes discrimination impossible. The right to education also covers the possibility for everyone to transfer to institutions providing education at the highest level.

Selection from the various levels of post-compulsory education and the variety of disciplines in which it is provided is based on the applicants' aptitudes and performances in relation to current social requirements and training capacities. In admitting applicants to courses of tertiary education, it is common practice to consider the social structure of the population in order to ensure a balanced composition of the student body and to avoid any social bias in the recruitment of the socialist intelligentsia from the various classes and strata of the population. Social need is also duly considered because it is in the interest of society and vital for the individuals concerned that graduates are employable after graduation.

Uniformity in the structure of education, which allows for the transition from one sector or level to another, thus avoiding dead ends, ensures the close interrelationship between general and vocational education. It also comprises a wide range of different routes, especially with regard to education, beyond polytechnical secondary schooling.

Owing to its *planned nature*, the education system and its components can be adapted to foreseeable educational needs and developments in society, in the national economy, and in science. Within this framework, quotas have been introduced by which entry into educational programmes leading to university entrance qualifications is controlled in accordance with prospective social needs, especially with regard to changes in manpower requirements.

This procedure provides for a favorable ratio between the annual number of admissions to university-level courses and the number of potential applicants holding the necessary qualifications. Presently the ratio is 1 : 1.4, which means that young people obtaining university entrance qualifications have realistic chances of being admitted to a university or university college.

Equality in education is guaranteed by the *public nature* of the entire education system. Consequently, all institutions of tertiary education are public and subject to governmental or state control. The state provides the material and financial means needed in tertiary education institutions to cope with their responsibilities in teaching and research including provision for appropriate staffing levels.

It should be mentioned in this context that full-time studies at institutions of tertiary education in the GDR are free of charge just as are studies in secondary and vocational education. All full-time students receive scholarships, in addition to which they may receive supplemen-

tary aid according to their performance and certain social criteria. These grants enable the students who receive them to concentrate on their studies. Correspondence students pay a very low fee. The specific study materials which they need for their courses are given to them free of charge. In accordance with the relevant legal provisions, they are granted study leave by their employers on certain days or in blocks during which they receive full pay.

As a result of certain fundamental social measures women receive equal rights in all spheres of social life, and the educational system is so set up as to guarantee quality education for everybody.

Table 5

Evolution of the percentage of women students at universities, university colleges and engineering and technical colleges

	Students Total		Full-time Students	
	Univ. Coll.	Tech. Coll.	Univ. Coll.	Tech. Coll.
1949	18.6	—	18.6	—
1955	25.5	—	29.3	—
1960	25.2	28.6	31.4	32.8
1965	26.0	30.5	31.0	39.2
1970	35.4	48.5	43.2	60.2
1975	48.2	65.4	56.0	77.7
1979	48.2	71.3	52.5	82.6

Table 6

Percentages of women students in relation to the total number of students according to subject areas in 1979

Subjects	University Colleges	Tech. Colleges
Maths/Nat. Sciences	45.4	—
Technology	27.0	31.4
Medicine/Public Health	57.1	97.8
Agrarian Sciences	47.9	46.3
Economics	57.5	83.3
Social Sciences/Arts	35.4	84.8
Education	74.1	84.8

The result of this development was the increasing number of women students who earned doctorates.

The number steadily increased from 11.9% to 30.4% in 1980.

2. TRAINING AT UNIVERSITIES, UNIVERSITY COLLEGES, AND AT ENGINEERING AND TECHNICAL COLLEGES

2.1. The requirement for entrance to higher and technical education — the procedures for admission

The university entrance standard (Hochschulreife), typically acquired in the "Abitur" examination, is the basic requirement for admission to higher education. The providers of education leading to the university entrance standard are the extended secondary schools, the "Abitur" sections of vocational schools, adult education centers, the higher education institutions which offer preliminary or pre-academic courses, and the Workers' and Peasants' Faculty (Arbeiter-und-Bauern-Fakultät) "Wilhelm Pieck" of the Mining Academy in Freiberg. They deepen and extend the students' ten-year general secondary education.

Many departments like their students to have had occupational or practical experience before they matriculate. Young people applying for admission to courses in technological or economic subjects at a university college of engineering are therefore required to have completed vocational training in a relevant field in addition to having met the university entrance standard. The above-mentioned three-year combined vocational and pre-academic education program leading to the "Abitur" and the preliminary courses for young skilled workers provided at university colleges of engineering are the main routes by which such qualifications can be acquired.

Since the late 1970s, practical experience and a so-called pre-academic practical placement period which can extend up to one year have gradually been established as entry requirements which must be satisfied by prospective students applying for matriculation at technological and economic departments of universities, university colleges of technology, colleges of economics, as well as at institutions of agricultural

and medical education. At agricultural and medical institutions, pre-academic practical placement has already been so firmly established as to require that the course content be altered accordingly. Similar modifications have taken place in many technological and economic disciplines. The gradual introduction of the requirement for pre-academic practical placement for all prospective engineers and economists will be completed by the academic session of 1981—82.

The purpose of pre-academic practical placement is to acquaint students with their future professional environments, and, to give them the chance to acquire experience and skills relevant to university-level training. During this period of practical work, future students are encouraged to obtain certain qualification certificates. Thus, all agricultural students are encouraged to obtain the necessary licenses to operate agricultural machines and vehicles such as combine harvesters or tractors. Similar practical requirements have also been introduced in other subject areas, e.g. journalism and law.

The systematic development and perfection of pre-academic practical work is therefore a higher education issue which requires close cooperation between governmental bodies, higher education institutions, factories, and other such organizations.

In contrast to the entry requirements at institutions of higher education, the certificate of ten-year secondary education is normally a sufficient qualification for admission to technical education. Additionally, applicants for technological and economic courses are required, firstly, to have completed vocational training in a field related to the courses they have chosen, and, secondly, to have had at least one additional year of occupational experience. Due to the differentiated requirements in those sectors of society where technical college leavers are usually employed, two different course patterns at technical education institutions in the GDR have emerged. The differences between the two patterns are evident not only in the course requirements but also, as will be shown later, in the content and the organization of courses offered (Cf. Fig. 2).

Course requirements are high for all applicants regardless of whether or not they apply for full-time, correspondence, or part-time courses. In addition, applicants for correspondence and evening courses are expected to have had both long-standing occupational experience and an exemplary record in their jobs.

Every citizen of the GDR who satisfies the above-mentioned requirements for entry into the various courses in higher as well as technical education has the right to apply for a course at a university, university college, engineering, or technical college and send his or her application to the institution concerned. Factories and other organizations may second staff members on higher education courses (Delegierung). Secondment is commonly granted to mature students entering correspondence and even-

ing courses. In addition to application forms, secondary education certificates, references, and valid health certificates must be produced for admission.

There are no entrance examinations; however, in some subjects applicants are required to pass an aptitude test, e.g. in the arts and in physical education. Selection is based on the applications made, which are assessed by the Admission Commissions existing in every institution. The commissions include experienced higher and technical education teaching staff, members of the elected committees of the youth organizations, and representatives of the trade unions. In assessing the applications, they make suggestions as to the admission of the most able and talented applicants taking into account the projected enrolment figures and the need for a balanced composition in the new student body so as to reflect the social structure of the population in the country. Aided by the suggestions made by the Admission Commissions, the rectors of universities and university colleges and the directors of engineering or technical colleges make the final decisions as to admissions.

Applicants whose requests cannot be considered are invited to appear for counselling in which they may be advised to apply for another, possibly related course or discipline or to another institution. The admission procedure is organized in such a way that, in general, applicants will be informed, at least six months before the academic session begins, of the decision taken by the institution to which they have applied.

Measures are taken on a large scale in order to attract well motivated young people to higher or technical education. Among these measures are the development of vocational and course counseling, the early registration of academic interests, and individual talks with secondary school pupils and applicants for higher education courses.

2.2. Aims, content and structure of higher and technical education courses

Courses organized at universities, university colleges, engineering and technical colleges aim generally to produce highly qualified and well-educated specialists with wide intellectual outlooks who aspire to work efficiently and to show a genuine interest in community life. They are expected to show intellectual curiosity, creativity, civic responsibility, and an active commitment to the issues of society. In addition, they are expected to be able and willing to take an active part in the construction of socialist society and to use the achievements of modern science in their work to contribute to a peaceful and cultivated life for all working people.

Higher and technical education courses therefore provide students with relevant knowledge. They also contribute to the formation of students' world outlooks, their political and moral attitudes as well as

modes of behaviour which preserve and continue the best traditions and ideas of militant humanism, patriotism, proletarian internationalism, solidtarity, and international friendship.

The institutions of tertiary education consider that the study of science, indeed, the acquisition of knowledge, is a combined effort of political, moral, aesthetic, and physical education. They therefore organize all aspects of training and daily life according to the principle of the *unity of training and education*. Thus, the study of Marxism-Leninism is a fundamental part of any course of higher as well as technical education. Likewise, the possibilities inherent in every subject will be used to develop and strengthen dialectical and materialistic thinking.

The unity of *theory and practice* is a top priority in the process of tertiary education. This principle is observed at all stages in designing higher and technical education courses.

Close and many-sided cooperation between educational institutions, factories, and other organizations is considered essential to this approach.

The differences between higher education curricula on the one hand and technical education curricula on the other are primarily due to the fact that the principle of the unity of *teaching and research* characterizes education at universities and university colleges in a special way. Since this principle is implemented, preferably, with regard to basic research, higher education courses focus primarily on theoretical and combined theoretical and methodological education. In the course of their studies, students are acquainted with almost the entire scope of knowledge available in their respective fields. In addition, they are trained in the investigation and solution of scientific problems and an introduction to the scientific terminology they need in order to describe their work.

2.2.1. **Higher education courses**

The content of teaching at universities and university colleges is characterized by three main components : general basic education ('allgemeine Grundlagenbildung') which is common to all basic branches of study ('Gundstudienrichtungen') and, in a sense, continues the education offered at the secondary level ; subject-related basic education ('fachbezogene Grundlagenbildung') which combines related areas of study ('Fachrichtungen') into a basic field ; specialist education ('Fach- und Spezialbildung') which varies according to the specific character of a given field of study but includes additional possibilities for further specialization available to students of the particular field.

General basic education provides at thorough grounding in the social sciences, comprising dialectical and historical materialism, political economy, scientific communism, and the history of the working-class movement. Basic courses in these areas during the first three academic years are followed by modular courses for senior students on special problems

of Marxist-Leninist theory. Furthermore, this component of all degree-level work continues the teaching of foreign languages, usually Russian, and a second modern language of the student's choice, as well as physical education. Finally, general basic education includes courses in which students acquire knowledge and skills for civil defense as well as for the military protection of the country.

Subject-related basic education is intended to impart theoretical knowledge in academic disciplines which will be relevant to the students' later careers. As is the case in general basic education, the aim is to provide a broad foundation for the continuous integration of new scientific findings into the students' professional lives, in other words, to increase the "adaptability" of graduates. For this reason, the second component of degree courses covers a comparatively broad range of academic disciplines, including natural and technical as well as social sciences. Thus, all students of technical subjects receive not only an extensive training in mathematics and physics but also attend courses in socialist enterprise management, labour sciences, etc. (Cf. Fig. 3).

Finally, the specialist courses in the various branches of study provide students with the specific basic knowledge necessary for their professional work. Instruction is based on selected examples with a broad relevance for their future work. Thus, students will be enabled to master varying professional tasks on their own. Such instruction is not intended primarily to prepare them for particular jobs, but to equip them for a broad range of different functions. Hence, prospective specialists acquire the ability to cope with changing and increasing challenges using the various and widening possibilities of further training (Cf. Chapter 3). Students are also offered lectures and seminars on selected topics as special course modules so that they can acquire in-depth specialized knowledge. In addition, the curricula allocate some teaching time to classes to be organized by the universities or university colleges and their departments as optional modules or as alternative compulsory modules among which the students can choose according to their interests. Thus, the curricula offer numerous possibilities for diversifying the structure of degree courses and for the individual promotion of particularly talented students.

The three main components which can be distinguished in the structure of degree courses do not represent separate phases in the process of teaching. On the contrary, these components and the individual subject areas are integrated into organic wholes. Therefore, elements of basic education may extend over the whole degree course whereas specialist course units may already be allocated to the first two academic years. The proportion of basic education to specialist education varies according to the field of study involved. Generally speaking, teaching in the basic subject areas is given particular attention to ensure a high level of training and the broad applicability of the acquired knowledge and skills. On an average, two thirds of the available teaching time are allocated to the first two components of degree courses (Cf. Fig. 3).

In the process of training, use is made of all forms of academic instruction including lectures, seminars, colloquia, exercises, tutorials, and practical courses in laboratories as well as in factories and other such organizations. Lectures still play dominant roles as systematic introductions to academic disciplines and as means of dealing with problems involved in theoretical or practical issues. In this connection, the influence of the university teacher's personality on the students' academic work is recognized.

During the first two academic years, seminars and exercises are designated to concur with the main lectures. They are the core modules, which like the practical courses in laboratories, are attented by all students.

Practical courses which were introduced in the early fifties are of special importance. Having since then become an integral part of higher education, they include without being limited to the long period of practical work for students of engineering extending over one term, the twelve-week practical period for students of economics, and the long period of practice teaching required of future teachers. While enroled in practical courses, students work in various factories and organizations under the guidance of advisors appointed by the employer concerned. At the same time, these students participate in the social and political lives of working collectives. They also undertake research projects which are frequently intended to solve problems at the work place and may even provide the basis for first-degree dissertations. Course programmes and personal work plans of the students concerned help to organize efficiently and effectively the practical work involved.

Self-study plays a crucial role, because only steady independent work and constant striving for the acquisition and the improvement of knowledge will provide keys to the mastery of science. Students are required to produce various pieces of academic work which range — with increasing difficulty — from seminar assignments, credit papers, work reports, materials for the preparation of colloquia and scientific conferences, and contributions to research projects in their departments, including first-degree dissertations. The independent work of students is particularly stimulated by involving them in research which prepares them for their final phase of academic training : the preparation and writing of first-degree dissertations.

As a complement to formal study, extracurricular activities organized by the students' rationalization and design office or by the students' office for art projects have proved useful. These are supported jointly by youth organizations and by academics and focus on the solutions to relevant practical problems such as the development of new products or the technological improvement of production processes. Other ways of fostering both creativity and a sense of responsibility among students as well as providing ways of promoting particularly talented students

are assignments to special research projects — the so-called youth projects — and the organization of special work groups, workshops, and conferences for students.

In order to stimulate student involvement in research, politics, ideology, culture, art, and sports, contests of students and young academics are held, for which the Socialist Youth Organization — in cooperation with the governing boards of the higher education institutions — is responsible. These contests have become an integral part of academic life. There are annual exhibitions at every university or university college and central exhibitions which take place every two or three years, involving all institutions of higher education, the aims of which are to acquaint the broader public with the best results of that work of students, which will often be put to practical use. Prizes and other distinctions for outstanding achievements are awarded by state organs and political organizations as well as by institutions of higher education.

The curricula of degree courses provide for regular examination periods, usually at the end of academic half-years (semesters) or years. The examinations are classified into intermediate examinations on elements of a subject area and final examinations covering the whole subject areas, the latter consisting of oral and written portions. In addition, the appraisal of students' progress is based on credits and on the continuous assessment of their performances in courses. Exemptions from examinations can be granted either in the case of steadily high levels of performance or in recognition of the results obtained in independent research projects.

The final examinations in Marxism-Leninism and in those subject areas peculiar to a given field of study are grouped together and have the status of a 'principal examination' ('Hauptprüfung'). It is always taken orally and is usually held half a year before the end of the degree course. Passing the principal examination is a prerequisite for obtaining the first academic degree referred to as 'Diploma in a field of knowledge' (Diplom eines Wissenschaftszweiges), which is awarded on the basis of a written project, the first degree dissertation ('Diplomschrift'). In this paper the student has to give evidence that he is able to complete an independent piece of research which has embodied an investigation of theoretical and practical problems in a scientific way. The dissertation will have to be defended publicly in the presence of experts. The graduate is then entitled to use the professional title connected with the degree, e.g. Graduate Mathematician (Diplom-Mathematiker), Graduate Engineer (Diplom-Ingenieur), Graduate Teacher (Diplom-Lehrer), Medical Graduate (Diplom-Mediziner), etc.

The length of degree courses varies according to the objectives and content of the courses. As a rule they extend over a period of :

— four years in agricultural studies, economics, law, and educational studies ;

— four-and-a-half years in the technical sciences (except at engineering colleges which run four-year courses) ;

— five years in mathematics, in the natural sciences, in philosophy, in history, in linguistics, in philology, and in studies of art and culture ;

— five years in dentistry and six years in medicine, including clinical work as an assistant during the final year of the degree course.

An academic session extends over ten months covering academic training, practical courses, and examinations (Cf. Fig. 5). It is subdivided into two semesters of equal duration.

The basic structure of degree courses as outlined so far is common to all branches of study, regardless of the time taken up by the course (full-time, part-time). Within this framework, there are special arrangements for the fields of study offering correspondence courses in order to meet the needs of part-time students. Typically, these students attend short courses organized for several days four times a year at the academic institutions themselves or at regional study centers. During these periods, introductory lectures, seminars, group tutorials and other course meetings are held. Knowledge is mainly acquired by self-study for which packages of correspondence materials have been developed. Compared with full-time studies, correspondence courses are separated into two fairly distinct phases. The first phase lasting two to three years is predominantly devoted to basic subject areas, whereas the second phase is reserved for specialized training. This division favors the efficient organization of teaching and learning. During the first phase, students may attend classes at any regional study center in the vicinity, regardless of the higher education institution at which the student has been enrolled. Periods of paid leave from work, including one of three months, to write and defend the first-degree dissertation, are effective aids for such students in completing their degree courses. Last but not least, the fact that the correspondence courses take longer to complete than full-time courses, by one-or one-and-a-half years, gives recognition to the specific conditions of this kind of academic instruction.

2.2.2. **Technical education courses**

The term 'technical education' is used to denote courses offered by colleges of tertiary education which are not of university standard. Such colleges are mostly technical and engineering colleges, but they also include colleges of education specializing in early primary education, colleges of music, colleges of nursing, etc.

The following groups of subject areas may be distinguished :

— social sciences and humanities, particularly basic education in Marxism-Leninism, as well as courses in German, Russian, and physical education ;

— professional basic education in subject areas characteristic of more than one field of study, i.e. mathematics and natural sciences, technical sciences and economics, educational science and psychology, and culture and art ;

— subject areas which are specific to particular branches of study together with their corresponding practical courses and work periods (Cf. Fig. 4).

Technical education courses are elaborated according to their particular aims and contents. The process of elaboration can be illustrated by reference to two courses of study entitled, respectively, "Technology of metal processing industries" and "Nursing".

The first year of study in the first of these courses focusses on the teaching of social sciences, languages, mathematics and the natural sciences. At the same time, students are also exposed to basic knowledge in electronic data processing, technical mechanics, materials engineering, information, documentation and standardization. The second year is devoted to the teaching of basic knowledge in technical and economic fields. This period of training is characterized especially by the following subjects : automation engineering, electrical machines and drives, components of machines, and production engineering. In the fourth and fifth semesters, this previous training is followed by specialized training in technical subject areas which are directly oriented towards preparing future engineers to be able to plan and manage production processes.

After the fifth semester, such students continue their training in practical courses for engineers. They follow individual programmes which are designed jointly by enterprises, on one hand, and engineering colleges together with their students, on the other. These programmes include scientific project work during the practical period, the writing of final papers, and tasks in the areas of political, ideological, intellectual and cultural activity.

In the case of nursing, courses are organized in a slightly different way. Since most of the abilities and skills in nursing can only be acquired by intensive practical work, nursing courses comprise a variety of practical periods and classes geared to professional needs.

During the first year, theoretical teaching is alternated every three weeks with practical training. Students acquire knowledge in the social sciences and in languages, in basic medical subject areas and in nursing, in fundamentals of pharmacology and in medical technology. The close connection between theoretical and practical training allows for the immediate consolidation and exploitation of newly acquired theoretical knowledge in the processes of practical work. In the second year, other specific subjects, such as special pathology and psychology for nurses, are studied.

In the third year, students acquire all the abilities and skills necessary for their work in the health and social services. Therefore most of the year is taken up by practical courses in medical institutions. In addition, students attend exercises and classes of a theoretical or practical kind.

One of the features of technical education is that students are grouped together in basic units of about twenty-five students each. In contrast to the situation prevailing in higher education, instruction is given mainly in group tutorials and practical classes.

The latter, which are designed to deepen and to consolidate theoretical knowledge, focus on the systematic development of abilities and skills. This type of teaching is extensively used for such diverse occupational groups as nurses, school teachers, nursery teachers, and artists.

Just as in higher education, intermediate and final examinations are conducted at institutions of technical education. Special attention is given to final papers which must be submitted towards the end of a technical education course. Students are assigned complex projects involving theoretical knowledge and the practical skills which they have acquired in different subject areas. The themes are normally taken from the future fields of employment and the results to be obtained are expected to be of practical relevance. In addition to writing final papers, students may also be required to take practical examinations. As a rule, the final papers will have to be defended in the presence of examination boards which will typically include representatives of prospective employers.

Courses of technical education are concluded by examinations, one component of which are the final papers. After passing the examinations, the college leavers are entitled to use the legally recognized professional titles such as Engineer, Economist, Dental Technician, School Teacher, etc.

In general, full-time courses of tertiary education which are not of university standard extend over three years, each year consisting of two semesters including 18 weeks of training. Only teacher training courses are conducted over periods of four years. *

The basic features of technical education also apply to correspondence courses which are quite common in this field of tertiary education. Similar to the situation described for higher education, these correspondence courses are designed to suit part-time students. Indeed, evening students play a major role in technical education. Courses of this kind as well as correspondence courses are taken by people who are employed full-time. The course structure of evening studies in contrast to that of correspondence courses resembles that of full-time studies so that only those people who work or live near a college can enrol in them. Evening classes are usually held two to four times a week after working hours, i.e. late in the afternoons, in the evenings, or on Saturdays. From time to time employers will release course participants from work so that they will have time to complete assignments and examinations.

2.3. Student living and working conditions

Studying at a university or college requires unremitting hard work, perseverance, and great effort. Nevertheless, the daily life of students provides ample opportunities for them to develop their personalities to the full.

* There are special regulations for some art courses that tend towards integrating secondary and tertiary education so that training may extend over periods of up to seven years.

For these reasons, the governing bodies of the institutions of higher education cooperate with the socialist youth organization in giving special attention to the improvement of student working and living conditions.

The development and the promotion of teamwork among university and college staff and students on one hand, and the various collectives of students, on the other, figure prominently in this process.

Great importance is attached to the systematic and rational structuring of courses. Central course programs are instrumental in solving this task at all higher education institutions.

A major constituent of the central course programmes which are published at regular intervals are the curricula covering the various courses. These lay down course objectives and list the academic disciplines, the subject areas, and the course patterns of each course of study. They also include information on the scheduling and the duration of course and practical work meetings as well as examination requirements in the various disciplines.

In addition, there are individual programmes for each of the subjects taught. They contain major stipulations as to the objectives and the content of instruction in the disciplines concerned as well as information on methodology. These programmes are designed to be more flexible than the usual curricula so as to allow for readjustments on relatively short notice in the light of new scientific findings and the requirements of the national economy.

These central course programmes thus provide the general framework for the conduct of academic work on the part of teachers and students in higher and technical education. The participation of staff and students as well as specialists from outside the academic establishments in discussing and drawing up course programmes, is arranged by the academic advisory boards and subject committees which act on behalf of the Ministry of Higher and Technical Education.

At the same time, debates are stimulated on differing views of fundamental issues in modern tertiary education. The course curricula, the basic conceptions of which remain unchanged for longer periods of time, are also major guides for the planning, the production, and the careful design of learning and teaching aids, particularly textbooks.

For a number of years, now, an extensive programme of tertiary education textbook publication has been under way, the aim of which was to supply all students with the essential scientific literature related to their courses of study.

Today, almost all basic subjects taught in the various course programmes are backed by the relevant standard works which are made available to all students at low, generally subsidized prices.

In addition, the state has allocated considerable funds for the introduction of technical teaching systems including audiovisual learning and teaching aids, and for the expansion and the improvement of laboratory and computing facilities.

The improvement of student living conditions has been given equal consideration. No fees are charged for full-time studies. Correspondence students pay only an annual tuition fee amounting to 120 marks for higher education courses and 80 marks for technical education courses. No charges are made for the use of establishment facilities such as libraries, laboratories, and sports grounds. All full-time students receive basic grants of 200 marks per month. Supplementary grants of 60 marks, 100 marks and 150 marks are awarded to students for exemplary performance. Special scholarships, such as the Karl-Marx Scholarships, amounting to 550 marks per month, are given in recognition of excellent records of academic and community activities.

Students are guaranteed adequate material security by means of additional grants made to those with long-standing job experience or several years of national service prior to enrolment and by a system of graded allowances such as those paid to student mothers.

All full-time students are insured on a non-contributory basis against illness and accidents. In case of incapacitating illness preventing course attendance, payment of grants in full and the appropriate allowances continues indefinitely. There are numerous student hostels available which offer suitable low-priced accommodations necessary for students to study properly. Currently, about 76% of students pursuing higher education courses and about 60% of those in technical education occupy accommodations in hostels. Student mothers and married students are given special priority for such accommodations.

Great efforts are also made to maintain a regular, lowpriced, good-quality meal service for students. Many new refectories have been opened in which students can enjoy good quality lunches. Prices are very low, ranging from 0.60 to 1 mark per meal. And finally, sizeable funding is provided to promote the cultural, sporting, and community life of students in their spare time, to support student amateur theatrical companies, extracurricular and club activities, and to ensure ample opportunities for recreation and relaxation especially during the holiday periods.

Similar arrangements suited to the special conditions of correspondence work apply also to correspondence students, including paid leave from work, granted by the students' employers on the basis of legal provisions guaranteeing 36 to 48 workdays of leave for higher education correspondence studies and 24 to 36 workday off in technical studies during each academic year, the appropriate number of days of leave from work depending on the subject area. In addition, such students are released from work for up to 3 months to prepare graduation papers. These provisions are supplemented by other measures, such as the free provision of correspondence course materials, concessionary fares, and other allowances which are made available within the general legal framework by special arrangement between the sponsors and the correspondence students.

One of the striking results of the efforts designed to improve the students' working and living conditions is the pass rate of between

85% and 87% of all students enrolled in full-time courses at higher education institutions. Similar evidence can be cited for full-time studies at technical college level.

On the basis of state plans and with the sanction of a special law, placement interviews with potential employers, in order to establish definite work contracts, are conducted as early as possible in the penultimate study year of full-time students. Thus students are given all opportunities to make full use of their final study periods in order to be better prepared for the professional challenges lying ahead. At the same time, early contacts with their future employers allow students to seek clarification of issues affecting their personal conditions at work. Finally, every graduate is assured by law of at least three years of continued employment in the initial placement. This legal provision is designed, above all, to permit graduates to acquaint themselves thoroughly with all professional duties and to build a lasting relationship with new work teams. And, what is more, it also ensures the material and social security of graduates during what for them are periods of transition.

Similar arrangements, particularly commitments regarding promotions to posts of special responsibility, apply to graduates of correspondence courses, for the enterprises which have seconded them are under particular obligations towards them.

Table 7

Numerical trends among tertiary education graduates — all types of studies (excluding graduate students engaged in research)

Year	Total	Nat. Sci.	Tech.	Med.	Econ.	Ped.	Other
A. Higher education							
1960	15,695	1,473	2,908	1,185	2,516	3,811	3,112
1965	20,878	1,783	3,183	2,290	3,790	6,247	3,585
1970	22,312	1,275	3,181	1,839	3,129	7,949	2,939
1975	34,521	3,257	12,205	1,529	6,357	7,682	5,539
1976	32,629	2,327	10,583	1,563	5,718	7,721	4,717
1977	27,115	1,866	7,851	584	5,313	7,017	4,484
1978	28,937	1,661	8,489	1,856	4,573	7,517	4,831
1979	24,562	1,648	6,733	1,950	2,984	6,862	4,376
1980	24,535	1,509	6,568	2,936	4,020	6,135	4,157
B. Technical education							
1960	24,544	—	11,293	234	2,496	6,619	3,902
1965	33,631	—	14,521	330	6,748	8,048	3,988
1970	36,265	—	15,263	471	8,928	7,100	4,553
1975	43,030	—	17,193	1,030	13,381	6,929	4,497
1976	38,982	—	13,901	1,031	11,787	6,721	4,062
1977	42,234	—	11,341	11,775 *	8,603	6,140	4,375
1978	41,179	—	9,185	12,923	7,678	7,031	4,412
1979	39,663	—	8,695	13,288	6,296	5,509	3,875
1980	42,038	—	9,901	14,093	6,329	5,956	3,839

* In 1974/1975 the training of intermediate medical personnel was upgraded to technical college level.

2. FURTHER TRAINING AT UNIVERSITIES, UNIVERSITY COLLEGES, ENGINEERING, AND TECHNICAL COLLEGES

Under the GDR Education Act, all graduates from institutions of higher and technical education are obliged "to acquire the knowledge and skills necessary for their work and to undergo continuous training. At the same time, the heads of state enterprises, factories, and other institutions are responsible for "taking necessary measures, in agreement with the institutions of higher and technical education, the Chamber of Technology (the association of engineers in the GDR) and the scientific societies for the provision of further training".

Given their research and educational resources, the universities, the university colleges, and the engineering and technical colleges contribute to the provision of a wide network of further training courses. The object of these courses is to impart knowledge that is new or that has become relevant for certain occupational groups. At the same time, these courses contribute to a dissemination of the results of research and their translation into practice. In accomplishing these tasks, they aim to maintain as well as to extend the professional qualifications of graduates. As a rule, university and university college graduates enrol for further training at institutions of higher education. On the other hand, graduates of technical education institutions will enrol for further training at engineering and at technical colleges. The fact, however, that further training courses in certain fields of technology, economics, and agriculture are the same in both types of institutions permits technical education graduates to enrol in postgraduate and special courses at universities and university colleges. At the same time, leading engineering and technical colleges may be commissioned to organize further training courses suitable for university or university college graduates.

This type of further training, which is also referred to as postgraduate training, has to accomplish three principal objectives. Firstly,

because it is closely linked with a person's previous education, it serves as a means of imparting professional or scientific specialization. An example of such training might be postgraduate training in the "technology of welding", intended for specializing mechanical engineers. A second objective of further training is to serve as a means of updating knowledge and skills previously acquired. This kind of further training is mainly relevant for persons, who as a consequence of performing new duties, must update their knowledge and familiarize themselves with the latest scientific achievements in their fields. As a result of the dynamics of science and technology and the need to disseminate research findings quickly and to prepare them for practical use, this objective of further training is growing in importance.

A third objective of further training is to qualify specialists for work in fields for which they are not well acquainted thus providing them with training in second fields or retraining them for entirely new fields of work. The former aspect, in particular, plays an important role due to changes in the economic structure. The personal interests, intentions and inclinations of the persons for whom these courses are developed must also be taken into consideration.

To accomplish these three objectives, institutions of higher education employ a variety of organizational forms including postgraduate courses, special courses, partial and external courses (Teilstudium and Gasthörerschaft), as well as scientific meetings.

Some 200 postgraduate courses currently offered relate to professions or posts held by the participants. Their aims are of a comparatively complex nature. Being equivalent to systematic courses of study, they provide special education that goes beyond the educational aims of undergraduate studies, or they update existing qualifications. A great number of postgraduate courses are dedicated to the acquisition of relevant knowledge and skills for such occupational groups as chartered accountant, patent engineer, industrial safety inspector, investment economist, welding engineer, and specialized translator. As a rule, a person's knowledge of related fields is also brought up to date with this kind of postgraduate course.

Such postgraduate courses, including the curricula of some undergraduate courses, are organized mainly as correspondence courses that include residential periods and extend over two to four semesters. Participants, who are provided with special materials and textbooks, are expected to acquire a great part of their knowledge on an independent basis. Nevertheless, they will sometimes attend lectures and seminars and do practical work in laboratories. At the end of their postgraduate courses, the students enroled must take examinations. If successful, they are awarded certificates, and eventually will be conferred special professional titles. Tuition fees for participants in postgraduate courses are as low as 120 marks a year. For attending academic meetings, postgraduate students are paid leave-of-absence allowances for up to 36 workdays per year.

Special courses are relatively short modules of systematic further training in selected fields. In tertiary education, such courses are conducted on special topics in almost all branches of sciences, in accordance with the requirements of practice or research. The most familiar type of this kind of organized training is the intensive full-time course extending over a period of one to four weeks for which the participants are released from work. Thus, for years, special courses on geographical and geological methods have been conducted at the Leipzig Karl Marx University. Similar types of courses in corrosion protection, modern conveying methods, etc. have been offered by the Technological University of Dresden.

The number of special courses and the number of participants in these courses have grown continuously in recent years. This trend indicates that institutions of tertiary education are coping effectively with the present need for further training. It also reflects their endeavours to promote the dissemination of research findings. At the same time, the growing interest of factories and of other organizations as well as of graduates themselves in these time-saving forms of further training has become evident. For these courses too, participants are paid their average salaries while being released by their employers. Tuition fees amount to 10 marks a week.

Other forms of further training include the possibility of enroling for only a limited number of subject areas in a course (Teilstudium) or attending course meetings as an external student (Gasthörerschaft). The former category of students will be referred to below as special students, the latter, who take advantage of undergraduate course offerings, as external students. Applicants intending to qualify in fields which are covered by undergraduate courses may enrol for specific parts of these courses under conditions provided for by law.

Special students may be admitted to one or several subject areas. They enjoy the same rights and have the same duties as undergraduates. They are obliged to take examinations and are awarded certificates. External students are admitted to specific course meetings. They are not required to take examinations but may be given certificates of attendance. The forms of further training mentioned in the last two paragraphs are less common than the others.

Scientific meetings are traditional constituents of academic life at institutions of higher education as well as at other institutions and organizations. They serve as a means to discuss, to increase, and to disseminate scientific research findings as well as to exchange information on specific experiences. Their educational value consists not only in the dissemination of up-to-date expert knowledge to specialists, but also in acquainting them with new approaches to the solutions of open problems. Thus these meetings make great demands on the qualifications of their participants but contribute to their own research.

A catalog published by the Ministry of Higher and Technical Education provides all factories and organizations in the country with information on the possibilities for further training in postgraduate as well as in special courses.

Finally, mention must be made of the existence of fully developed and coordinated systems for the further training of large groups of specialists, principally physicians and teachers. These systems include a great variety of different types of special courses, the organization of which, in the cases of physicians or teachers respectively, is in the hands of the governmental authorities responsible for health and education.

In addition to the various types of professional further training already mentioned, the institutions of higher education disseminate general education in the surrounding communities and on a national scale. This task is accomplished, above all, by lectures or series of lectures that are open to all interested persons. But there are additional courses which pursue the same aim such as special courses (Veteranenkolleg) for elderly citizens. The Sunday lectures (Sonntagsvorlesung) held once a month at various higher education institutions have met with favorable responses. At these meetings, outstanding scholars and scientists lecture on topics of general interest which have emerged from their own research. Certain branches of organizations such as Urania, the society for the dissemination of scientific knowledge in the GDR, the Cultural League of the GDR, and the Chamber of Technology contribute significantly to the popularization of knowledge by offering numerous lectures.

4. TRAINING FOR HIGHER ACADEMIC DEGREES AT UNIVERSITIES AND UNIVERSITY COLLEGES

4.1. Paths leading to the award of higher academic degrees

The training of scientists and scholars is a particular concern of all higher education institutions. Young graduates with particularly good academic aptitudes are therefore encouraged to undertake postgraduate study beyond the first academic degree. The system of higher education includes a wide range of mutually complementary programms leading to the award of higher academic degrees. The system allows for flexibility in view of varying requirements. Independent research by teams under the supervision of senior members of academic staffs is the basis of such "courses".

The programmes of training for the award of higher academic degrees include the following :

— assistant lecturerships (wissenschaftliche Assistenz),
— research studies (Forschungsstudium), and
— supervised advanced research for doctorates (Aspiranturen).

An assistant lecturer (wissenschaftliche Assistenz) at a higher education institution has received a formal academic appointment. Above all, his work includes teaching in seminars, and practical courses, as well as the undertaking of a fair amount of research. A senior member of the academic staff supervises the assistant lecturer's work which is considered to be a substantial part of the latter's further training and education. It includes cooperation with and involvement in the scientific life of the department and of the school. If the assistant lecturer does not

hold a first doctorate, he or she will usually be expected to work for it and prepare a doctoral thesis.

Research study courses (Forschungsstudium) have been introduced in order both to enable especially talented students to advance and to provide for the rapid training of research workers. After being selected, while undergraduates, on the basis of academic merit, research students normally study according to individualized special programmes under the supervision of senior members of academic staffs. Their work for their first academic degrees (Diplomen) is usually combined with the acquisition of further specialized knowledge, sometimes even in other disciplines. After graduation they work for the first doctorate. As a general rule, students take three years to complete courses of research studies. Research students normally receive basic grants of 500 marks per month. Beginning in their second years, they may be granted performance-related supplementary allowances.

"Aspirantur" research courses have been introduced primarily for graduates who have accumulated particularly good records during several years of practical experience in research and equally good records with regard to their involvements in social work. Such courses are offered especially for staff members holding doctorates in subject areas and fields in which there is an urgent need for advanced research.

There are two types of advanced research courses leading to doctorates : firstly, the three-year full-time research course (planmässige Aspirantur) requiring the candidates to study full-time at higher education institutions. Each candidate is awarded a scholarship which usually amounts to 80% of his or her previous salary up to a maximum of 1,200 marks a month. Within certain limits, candidates are also involved in teaching. Employed persons usually join a second type of programme, i.e. part-time advanced research courses (ausserplanmässige Aspirantur) extending over four years. Such students are entitled to be paid study leave of one day per week and an additional block of four weeks annually. Aspirantur research courses may be taken in order to work for either a first or a senior doctorate.

Naturally, every GDR citizen who has the necessary qualifications has the right to prepare and submit a research thesis and can thus obtain a higher academic degree. A growing number of citizens make use of this right. The number of research theses submitted by graduates who acquired their academic further training outside the standard pattern described above has been rising for years.

Table 8

Number of first doctorates (Doktor eines Wissenschaftszweiges) conferred at GDR higher education institutions

Year	Total	Maths Nat. Sci.	Tech. Sci.	Med. *	Econ.	Educ.	Other
1971	2,785	797	516	120	329	193	830
1972	2,952	795	671	175	367	248	696
1973	3,366	814	795	179	441	298	839
1974	3,389	774	834	273	451	307	750
1975	3,436	773	833	312	396	364	758
1976	3,270	678	807	332	357	393	703
1977	2,873	575	674	413	317	362	532
1978	3,132	618	638	586	258	371	661
1979	3,067	587	668	617	279	315	601
1980	3,343	637	577	837	239	385	668

4.2. Academic degrees. Types of degrees awarded

There are three different academic degrees in the GDR. The first one is the diploma which is awarded in a branch of knowledge. Next is the first doctorate, also awarded in a branch of knowledge but at a higher level than that required for the diploma. The holder of this doctorate is referred to as "Doktor eines Wissenschaftszweiges" unless it was awarded in one of the natural sciences in which case the holder will have the title of Dr. rer. nat. The highest or senior doctorate gives the title of "Doktor der Wissenschafter", i.e. doctor of science. If the holder earned a first doctorate in natural science he or she will have the title of Dr. sc. nat.

In addition, honorary doctorates (Dr. honoris causa) may be awarded to eminent personalities at home and abroad for special contributions to the development of science, technology, and culture as well as to social progress in general.

The award of degrees is based on legal regulations *. Degree awarding power, including the awarding of the diploma, as the first and senior doctorates, is granted to institutions of higher education by the Minister of Higher and Technical Education.

* Since 1969/70 new regulations governing the award of the doctoral degree in medicine in the GDR have gradually been adjusted to confirm to the practice common in other branches of knowledge. The possession of a first degree was made a compulsory requirement for the award of the doctoral degree. This change resulted in a temporary decrease in the number of first doctorates awarded in medicine, but since 1974-75 the numbers have rapidly gone up.

* Cf. Decree on Academic Degrees of 6 November, 1968.

In making the necessary decisions, the Minister is advised by the Council of Academic Awards made up of prominent GDR scientists and scholars. It analyses degree awarding practice in the GDR, undertakes comparative studies on an international scale, and assesses trends in the development of science. Its members advise the Minister in setting degree standards, in supervising the observance of the relevant regulations, and in preparing decisions on appeals concerning the award or non-award of academic degrees by higher education institutions.

The award of the first doctorate is of particular significance in the further training of graduates for positions in teaching and in research.

As a first step, the candidate is required to submit a thesis to the Academic Council of the higher education institution from which he wishes to take the doctorate. The thesis is expected to give evidence that the candidate has dealt with a subject of social and scientific relevance at a theoretical level in such a way that he has made the practical implications of his findings evident. The thesis may be presented either as one complete treatise or as a collection of several separate papers. Owing to the growing importance of socialist collective work and interdisciplinary cooperation, a thesis may also be the result of collective work, undertaken in such a manner that the individual contributions are adequately recognizable. The major conclusions of the thesis are to be summarized in a short abstract which is referred to as "Thesen".

As a general rule, a thesis is evaluated by three assessors who are appointed by the Academic Council of the higher education institution concerned. Provided the majority of their reports is positive, the Academic Council will appoint a commission whose members are responsible for making arrangements for the required public defense of the thesis.

In defending his thesis, the candidate is required to justify his own arguments and to discuss opposing views. Such debates, major events in the scientific lives at higher education institutions, subject research findings to rigid tests. Additionally, the procedure helps to make research findings available to the public and to accelerate their practical application.

Following the thesis defense, the commission appointed by the Academic Council assesses the candidate's performance and makes a recommendation as to the award of the doctoral degree. The final decision on the award is then taken by the Academic Council or the competent faculty of the Council of the university or college concerned.

A similar procedure will take place if a senior doctorate is to be conferred, but a candidate for a senior doctorate has to show a much higher standard of attainment. The award, which is based on advanced research in a branch of science of technology, is expected to contribute significantly to the relevant field. In addition to having an outstanding specialized knowledge as well as a broad general knowledge of the given subject area, the candidate is required to combine great methodological skill with experience in interdisciplinary cooperation and the ability to make practical use of research findings.

Whereas the research for and the writing of the first doctorate is usually supervised by a senior member of the academic staff, the work for a senior doctorate is done completely unaided. It is usual for most senior doctorate candidates, to be leaders of research teams and to be themselves the supervisors of candidate working for diplomas or first doctorates. The possession of a senior doctorate is normally a requirement for an appointment to a senior academic post, i.e. a readership or a professorship.

Table 9

Number of second doctorates (Doktor der Wissenschaften) conferred at GDR higher education institutions

Year	Total	Percentage
1971	226	4.4
1972	197	—
1973	264	7.6
1974	279	7.5
1975	324	5.6
1976	462	8.2
1977	453	10.8
1978	556	9.9
1979	653	9.3
1980	707	13.7

5. INITIAL AND FURTHER TRAINING OF FOREIGN STUDENTS AND YOUNG ACADEMICS IN THE GDR

Thousands of citizens from foreign countries are studying in the tertiary educational establishments of the GDR. Places at these institutions are made available on the basis of intergovernmental agreements or are provided under arrangements concluded with public organizations in other countries or with international organizations such as Unesco. Agreements concerning the mutual recognition of academic degrees have been concluded with a variety of countries including all the socialist countries. Efforts are being made to conclude further agreements of this sort and to cooperate with Unesco on this question.

Foreign students are admitted to courses of study in the GDR on the basis of secondment through the appropriate authorities in their native countries. Individual applications are considered only if these are submitted by foreigners who are resident in the GDR.

An applicant for a higher education course must be able to provide a certificate which would entitle him or her to enter a higher education course in his or her own country. Applicants for technical education courses should posses qualifications equivalent to those having completed the GDR 10-year polytechnical secondary school. Moreover, they should provide evidence of appropriate professional experience.

In order to be admitted to an advanced research course (Aspirantur) candidates must have graduated from a higher education institution and should be in possession of a certificate which is equivalent to a degree (Diplom) awarded by a higher education institution of the GDR.

Academic requirements aside, applicants are required to provide official medical evidence showing that they are physically able to follow a course of study in the GDR. As a rule, undergraduate students should not be older than 25 and candidates for advanced research courses, not older than 35 when beginning their courses.

For applicants who are not proficient in German and who are not in positions to learn the language in their home countries, proper language instruction can be arranged by means of a preacademic German language course lasting one year. Such courses are offered principally by the Herder Institute of the Karl-Marx-University in Leipzig.

Foreign students study alongside their GDR counterparts in whose groups they are closely integrated. Foreign students have equal rights and opportunities to participate in the academic, social, cultural, and sports activities of their educational institutions.

Foreign students, including those doing advanced research, follow the same course schemes as German students and are subject to the same regulations relating to examinations (Prüfungsordnung), the award of first (Diplomordnung) and higher degrees (Promotionsordnung), and the pursuit of advanced research degrees (Aspirantenordnung) as nationals of the GDR. Some academic disciplines offer special courses and organize scientific meetings geared to the specific needs of particular countries. Similarly, such needs are considered in the selection of suitable subjects for dissertations and doctoral theses.

Foreign students receive scholarships for the required periods of training which are paid either by the home country or by the GDR. In the latter cases increments to scholarship holders are granted, in just the same way as to GDR students, for outstanding performance. There are no tuition fees. As of this writing the GDR has paid the total costs for training more than 13,000 foreign students. Many other foreign students receive partial or full stipends from non-GDR sources.

In addition to the forms of training mentioned above, other possibilities exist for further training and post graduate research for which arrangements can be made under cultural exchange programmes concluded with countries interested in such kinds of cooperation. The conditions for participation, however, may vary according to the field of study concerned and the type of further training desired. Of particular interest in this context are the International Summer Schools for German Studies (Internationaler Hochschulferienkurs für Germanistik) organized by many institutions of higher education for which even individual applications are accepted.

At those tertiary education institutions having sufficient numbers of foreign students, International Student Committees (Internationale Studentenkomitees) are formed, made up of authorized representatives of the various national student groups. These committees cooperate closely both with the Free German Youth (FDJ) and the governing bodies of the institutions to encourage democratic participation and social activities among foreign students. In cooperation with the Free German Youth, these student committees contribute to establishing and maintaining friendly contacts with citizens of the GDR.

FOREIGN STUDENTS

Foreign students, undergraduates as well as postgraduates from a given country, are entitled to form national associations (Verbände) which support the efforts of their educational establishments in favor of the training and the postgraduate education of foreign students and the working population of the GDR. They also help to foster the cultural traditions of their home countries and to encourage students to engage in useful recreational activities. These associations are supported in their work by the Committee on Matters of Foreign Students Living in the GDR (Komitee für Angelegenheiten ausländisher Studenten in der DDR).

Table 10

Foreign students at GDR tertiary education establishments

Year	Total	Tech. Ed.	Higher Ed.	Doctorate	Others
1970	4,747	557	3,128	603	459
1971	4,950	563	3,239	756	392
1972	5,204	760	3,239	735	470
1973	5,199	729	3,235	705	530
1974	5,550	925	3,187	752	686
1975	5,442	808	3,237	800	597
1976	6,211	817	3,751	794	849
1977	6,776	851	4,213	744	968
1978	7,243	818	4,297	739	1,389
1979	7,767	745	4,286	747	1,989
1980	8,507	723	4,589	789	2,406

6. RESEARCH AT HIGHER EDUCATION INSTITUTIONS

As the most advanced educational establishments in the system of education, the universities and university colleges can only attain their objectives if they are also important centres of research with major responsibilities for planning and expanding basic research and briefing about advancements in science. They must also contribute to increasing the efficiency of research and research findings so that they can be widely utilized in the different sectors of the national economy.

The "Education Act" explicitly states that "the integration of teaching and research is a basic element of all work at higher education institutions". At the present time a fairly high proportion of the total research potential of the GDR is concentrated at these institutions.

The objectives for research are invariably determined by the needs of society, the conditions of production in the national economy, and the level of development in each field of knowledge.

In addition, the specific characteristics of each higher education institution are related to the following functions with the aim of making the best institution-project match :

— the selection and specification of research projects ;

— the advancement of basic research and the establishment of close interrelations between basic and applied research ;

— the development of a wide spectrum of disciplines embracing all branches of learning at universities and colleges ;

— use of a broad spectrum of academic disciplines for the development of interdisciplinary research and the promotion of new fields and areas of work ;

— the development and expansion of international cooperation in research, primarily between institutions of higher learning and other academic institutions in the socialist countries.

As a part of this process and depending upon the students' abilities, various possibilities for active participation in research will be utilized thus further developing the abilities and the attitudes of students which are essential for achieving outstanding results.

The research plans of universities and colleges form an integral part of national planning for research and the development of science.

The system of research planning has been organized and developed with the following aims in mind :

— At all levels and in all phases of the planning process, scientists should play an active part in working out plans, establishing the objectives of research, and planning the steps necessary to implement these objectives ;

— Central planning at governmental level and planning at institutional level should be closely interlinked so as to encourage initiative on the part of scientists and foster their activities in establishing and defining research objectives ;

— There should be enough scope in the planning of research objectives and in the provision of appropriate research facilities to permit, on one hand, the implementation of central research projects and, on the other, to encourage the independent initiatives of scientists to deal with new problems.

The principle of contractual research is followed to make research highly profitable for society, to utilize all available facilities as efficiently as possible, and to translate the results of research into practice very rapidly.

This kind of research requires :

— close cooperation between the potential users and the contractors in defining and working out research projects ;

— a clear definition of the principal aims of the projects and regular reports to the potential users on the intermediate and final results of such research ;

— agreement as to clear definitions of each partner's responsibilities in making research results available on schedule and in conformity with the standards set and agreements made as to how these research results are to be given practical application.

In order to ensure that their results satisfy the varying needs of socialist society, the following bodies and institutions are authorized to initiate basic and applied research projects :

I. The Ministry of Higher and Technical Education for its own projects and for those which are part of plans of the central government.

II. The central government and local authorities ; major academic bodies and industrial enterprises.

— Rectors of universities and colleges who are advised in the promotion of research by the Academic Councils of their institutions.

Simplified research funding procedures help to promote research : the actual funds are derived from the state budget or from special budgets of industrial combines and enterprises which initiate research.

Of special importance, in this context, are agreements concluded between higher education institutions, and industry and other interested institutions.

In this process a great variety of fruitful cooperative activities have been developed between universities, industry, and other sectors of the national economy.

These include :

— the temporary assignment of academic staff and students to work with teams in industry and, the temporary loan of industrial experts to research groups at higher education institutions ;

— the involvement of academic staff in conceptual work and programme design and promotion for the scientific and technological development of industrial enterprises and combines ;

— the setting up of scientific development groups responsible for finding practical solutions to problems ;

— the establishment of consultation centres at institutions of higher education intended to help satisfy the varying needs for scientific advice on current projects carried out to rationalize production processes and working operations ;

— the operation of a tailor-made information service which operates by means of reports and catalogs on research options and scientific findings ;

— the organization of special seminars, colloquia, and short courses for disseminating new scientific knowledge ;

— the public discussion of the results of research including the holding of public dissertation and doctoral thesis defenses.

7. THE ROLE OF LIBRARIES IN THE SYSTEM OF TERTIARY EDUCATION

The libraries which are attached to tertiary education institutions play very important roles in the processes of training and further education, in the dissemination of scientific knowledge, in the advancement of research, and, more generally, in the intellectual and cultural life of the country.

The university libraries possess the largest collections of books in the country. Their foundations often date very far back in history. In addition to millions of books and other publications, the university libraries contain thousands of medieval manuscripts, valuable first editions, and other materials obtained through bequests.

A principal function of the libraries is to acquire and make available the literature that is required for training and further education. Such literature includes, first of all, textbooks and other important teaching materials. In recent years, however, audiovisual materials, such as records, audio cassettes, sets of slides and films, etc. are being increasingly included.

Nearly all libraries have special collections which correspond to the course structures of the educational establishments to which the libraries are attached. These collections are, as a rule, freely accessible to the public.

The research services of university and college libraries support the specific research activities to which they are oriented by providing the required literature. Moreover, libraries provide a wide range of information services including :

— publication of complete or classified catalogs of books and of new acquisitions ;

— publication of bibliographies for special purposes ;

— answering inquiries for specialized literature.

In order to increase the efficiency of their scientific information work, the libraries give particular consideration to :

— extending cooperative relations with the different networks of scientific information in the GDR which operate on the basis of uniform regulations ;

— establishing and extending under their own control centres of scientific information ;

— expanding and improving their own information activities ;

— exploring information needs systematically ;

— processing the results of research obtained at each particular establishment and making them available to the appropriate information centres.

Within the framework of these centres a special information network has been set up and is referred to as "Management, Planning and Research Concerning Tertiary Education". Its activities are based on the requirements and needs arising in the long-term development of tertiary education. It places relevant information at the disposal of their government authorities as well as scientific institutions which are concerned with research relating to the development of technical education.

So both the central libraries and the library units existing, for example, at the different departments of higher education institutions, are divisions of one uniformly organized University Library which is headed by a Director and which operates according to uniform guidelines. This arrangement permits a rational and efficient utilization of means, facilities, and manpower and a fruitful organization of work.

University as well as technical college libraries are in turn divisions of regional library networks (Bibliotheksnetze), which are supplemented by specialized library services (Fachnetze) for particular scientific and economic needs. A deliberate specialization in the acquisition and collection of scientific literature on a nation-wide basis enables the libraries of higher education institutions, to concentrate their financial means, as parts of a coordinated national system, on definite subject areas. The pooling of literature has also proved to be useful in the advancement of international cooperation. The libraries of tertiary education institutions are integrated into national information networks established for science, technology, and social sciences. In some cases, university or college libraries constitute the core of the specialized library services. An example of such a situation is the library of the University college of Economics in Berlin (Hochschule für Ökonomie, Berlin), which is an information centre for the field of economics. Through their cooperation with the above-mentioned specialized library services, university and college libraries are linked with international

information networks existing within the CMEA or which are being established in cooperation with international organizations. In this way they can utilize the information pools of the participating countries that had been created for their own teaching and research.

Ultimately, university and college libraries are public libraries and as such can make essential contributions to the advancement of cultural and intellectual life in particular regions by making their rich cultural and scientific sources accesible to interested persons. Through exhibitions, guided visits, etc. they assist in opening up these rich treasures of scientific thought to the population.

8. ACADEMIC STAFF AT TERTIARY EDUCATION INSTITUTIONS

The academic staff of higher education institutions is grouped into two major categories :

I. Senior academic staff (Hochschullehrer) comprising professors (Professoren) and lecturers (Dozenten).

II. Junior academic staff (wissenschaftliche Mitarbeiter).

Table 11

Academic staff in the GDR during selected years (excluding medical staff)

Year	Senior Academic Staff	Junior Academic Staff	Total
1951	1,395	1,879	3,274
1955	2,535	5,208	7,743
1960	4,152	7,412	11,564
1970	4,621	16,598	21,219
1975	5,276	20,652	25,928
1980	6,374	22,474	28,848

8.1. Senior academic staff — professors and lecturers — (Hochschullehrer)

The responsibilities, rights and obligations of senior academic staff were laid down in the "Decree on the Appointments and Positions of Senior Staff at Higher Education Institutions" (Hochschullehrerberufung sverordnung) of 6 November 1968.

It is part of the responsibilities of senior staff members to organize lecture courses, seminars and other meetings so as to make the highest

demands on both teachers and students, e.g. lectures, advanced discussions in classes, colloquia, and examinations. The senior academic staff's own research is an essential prerequisite for teaching. It is considered every senior staff member's duty to make an essential contribution to the development of his field of study by means of his own research work, and to plan and guide research work in his field by his students. Moreover, it is their responsibility to cooperate with the relevant enterprises to ensure the rapid practical application of research results.

In view of the heavy responsibilities placed on professors and lecturers, the appointment of suitable personalities to senior academic posts is undertaken with great care. Proposals for appointments are elaborated by the Councils of the Departments to which the candidates are to be appointed. The Council will determine whether or not the candidates' academic records justify appointing them. Special consideration is given to the candidates' previous work and their ability to apply theoretical knowledge to promote social, scientific and technological advancement. For a proper assessment of all these factors, the Council will consult various academic and governing bodies and seek experts' opinions on the candidates' achievements in research and practice. As a prerequisite for appointments, candidates, as a rule, are required to hold senior doctorates or to give proof of equivalent academic achievements.

Furthermore, the candidates' experience in the socialist education of young people as well as their competence in teaching the theoretical and methodological fundamentals of the fields of study concerned will be considered. This competence is judged by means of a special procedure by a commission of the Academic Council on the basis of test lectures and reports submitted by experts. The results of these examinations are decisive for granting the "facultas docendi", i.e. the certificates entitling the holders to lecture in particular branches of study at the university level. Proposals for appointments made by Councils of Departments will be considered by the Academic Councils of higher education institutions. The respective trade union committees will also give their views on the proposals. Finally, the rectors will submit proposals for appointments to the Minister of Higher and Technical Education.

A proposal suggesting three candidates is to be submitted to the Minister for the appointment of a full professor who will hold the chair in his field of knowledge. The Minister will then appoint one of the candidates. This provision, which is based on the high qualifications and responsibilities of full professors, underlines the special role which distinguished them from other senior members of academic staffs. Professors are expected to make essential contributions to the orientation and advancement of research work in their fields. Commensurate with their great responsibilities, all full professors are members of the Academic Councils of their own departments. From their ranks the rectors and deans of the faculties are elected.

In order to promote a close connection between research and practice and to use the academic potential for undergraduate and postgraduate instruction of scientists who have been employed outside higher education but who have the qualifications required of senior academics, such persons may be offered part-time appointments. Such appointments include part-time professorships and part-time lecturerships. Moreover, experienced lecturers and other members of academic staffs may be appointed associate professors in recognition of their achievements and merits.

The high social esteem senior academic staff members enjoy on account of their achievements is also reflected in the salaries which they are paid. A lecturer receives an initial salary of 1,550 marks and a full professor, 2,450 marks. As a rule, increments may be granted every two years depending on achievement, the top salary for lecturers being 2,550 marks and for full professors, 3,650 marks. Special bonuses for outstanding achievements may be granted by the Minister of Higher and Technical Education.

8.2. **Junior members of academic staffs of universities and university colleges (Wisenschaftliche Mitarbeiter)**

The second major group of academic staff members at universities and university colleges are referred to as "wissenschaftliche Mitarbeiter". In general, they work under the supervision of senior members of academic staffs who are responsible for their individual fields. Junior members of academic staffs include :

— assistant lecturers (wissenschaftliche Assistenten) and assistant physicians (Assistenzärtze) at university hospitals ;

— specialist lecturers (Lehrer im Hochschuldienst) ;

— senior specialist lecturers (Lektoren) ;

— senior lecturers (wissenschaftliche Oberassistenten) and senior physicians (Oberärtze) ;

— academic secretaries (wissenschaftliche Sekretäre).

These groups of academic staff members differ from each other with regard to the content, complexity, and academic level of their work. The assistant lecturers' work consists of undergraduate and postgraduate teaching as well as research and administrative activities.

Specialist lecturers and senior specialist lecturers are primarily employed in teaching in subject areas in which the acquisition of knowledge is closely combined with the development of skills. Examples are the teaching of foreign languages and sports and practical instruction in laboratories. Senior specialist lecturers are generally employed to offer special training in such areas as language instruction for interpreters or in linguistic and literary fields of study such as English and American studies, Slavic studies, the study of Romance languages and

literatures, etc. Therefore higher qualifications are required of them. As a rule, senior specialist lecturers are required to hold the first doctorate.

Within this group of academic staff members the senior lecturers occupy important positions. Their duties call for high qualifications, initiative, and responsibility. Senior lecturers are also employed in teaching and research and for holding administrative posts. Frequently they are involved in supervisory work such as the supervision of teaching by assistant lecturers and the direction of special research projects. They may frequently be involved in the administration of the academic divisions concerned. In general, senior lecturers are required to hold the first doctorate and to have gained several years' experience as assistant lecturers or in responsible positions outside higher education. An increasing number of senior lecturers are working for their senior doctorates. Hence this group includes a large number of potential appointees to senior academic posts.

Academic secretaries are primarily entrusted with administrative work. They provide support services for those senior academics who are involved in academic government, planning, administration, and the organization of academic work. As a rule, academic secretaries are also required to hold the first doctorate.

Moreover, the obligations of universities and university colleges call for the maintenance of a complex system of academic machinery which employs a number of junior academic staff members. This group comprises custodians, librarians, translators, museologists, etc.

Salary scales take into account the special duties as well as the different responsibilities and qualifications of the various groups of junior academic staff members. As with senior academic staff, increments in salary, depending on achievement, may be granted every two years. The difference between the starting salary and the potential final salary is 1,040 marks to 1,640 marks for assistant lecturers and 1,230 marks to 1,880 marks for senior lecturers and academic secretaries.

8.3. College lecturers (Fachschullehrer)

College lecturers in the GDR must fulfil three basic qualifications. They should have :

— first degrees in fields of study corresponding to the subject area in which they work ;

— good teaching records in their subject areas or specific qualifications acquired within the framework of further training adequate to the subject area ;

— evidence of pedagogical knowledge and skills which can have been acquired through postgraduate courses in technical college pedagogics.

Specialists with professional experience outside the academic realm who meet these specific requirements may also be employed as part-time college lecturers. They are chiefly used in correspondence and evening courses as well as in special training courses.

Finally, there is the possibility for senior and junior academic staff members of universities and university colleges to teach at technical and engineering colleges. Such a situation prevails primarily in situations in which technical colleges, such as medical colleges, are attached to universities and university colleges or in which certain technical colleges are branches of a university college, as for example, the Mining Academy at Freiberg. Moreover, senior and junior part-time lecturers can be assigned to correspondence and evening courses.

College lecturers are involved in systematic continuing training in their specialities as well as in pedagogy and social science. In addition to their own studies, they work in specialized groups ; they contribute to research and development activities undertaken in factories and in other such organizations, and in an increasing number of nationally organized special courses like those mentioned above.

9. THE ADMINISTRATION OF INSTITUTIONS OF HIGHER EDUCATION

9.1. The integrated system of state administration

As state institutions, universities, university colleges, and engineering and technical colleges are controlled by several ministries. All the universities, university colleges of technology and economics, medical schools and certain technical colleges of economics, libraries, archives and museum sciences are under the direct responsibility of the Ministry of Higher and Technical Education, which, being a central organ of the Council of Ministers (Ministerrat), is responsible for the implementation of a uniform policy on higher and technical education. The other university colleges and engineering and technical colleges come under the authority of other ministries. The university and other colleges of education report to the Ministry of Education (Ministerium für Volksbildung). The university and other colleges of art and culture report to the Ministry of Culture (Ministerium für Kultur). The engineering colleges report to the different industrial ministries (Industrieministerien) or to the Ministry of Building and Construction (Ministerium für Bauwesen).

Due to its responsibilities, the Ministry of Higher and Technical Education ensures that a common policy is implemented by all the institutions concerned with the development of higher education. For this purpose, the Ministry of Higher and Technical Education makes the necessary decisions and controls their implementation.

These decisions relate to the inclusion of tertiary education, together with its services, its material, and its financial and manpower resources into the overall economic plans. It makes decisions relative to the principles underlying admissions and graduate employment, to basic problems of planning and organization in education, initial and further

training, research, and as far as medical institutions of tertiary education are concerned, to their contributions to public medical care. Further important areas of decision concern co-operative links with partners in science, industry and administration, and last but not least, all tasks and duties that are closely connected with the purposeful promotion of all that relates to science and higher education in general.

In the solution of these and similar problems, the Ministry of Higher and Technical Education works closely with the other central organs of the state.

Fundamental questions concerning the development of teaching, higher learning, and research, as well as the organization of the working, studying and living conditions in universities and colleges facilities are discussed with the Central Council of the Free German Youth (Zentralrat der FDJ), the youth organization of the GDR, and with the Central Committee of the Union of Scientific and Research Workers (Zentralvorstand der Gewerkschaft Wissenschaft).

To solve the basic problems of the development of science, and research, multifaceted co-operative links have been established with the Academy of Sciences of the GDR (Akademie der Wissenschafter der DDR).

The Council of Higher and Technical Education (Hoch- und Fachschulrat) is the supreme advisory body for the Ministry of Higher and Technical Education on all matters of tertiary education connected with the implementation of the Education Act (Gesetz über das einheitliche sozialistische Bildungssystem), on problems of long-term planning in higher and technical education, as well as on all other major issues concerning the development and organization of initial and further training and research. Members of the Council are rectors of universities and university colleges, directors of technical colleges, university and technical college teachers, students, senior officials of the ministries, presidents of academies of science, and heads of other major academic institutions, as well as representatives of the Socialist Unity Party of Germany and other social organizations.

Academic Advisory Boards (Wissenschaftlicher Beirat) and Central Specialist Committees (Zentrale Fachkommission) representing the different fields of higher education and consisting of academics, representatives of industry, administration, commerce, and other scientific institutions and relevant ministries, act as permanent advisers to the Minister in all matters relating to education, initial and further training, research, science development, and other important fields of tertiary education.

Advice on the long-term development of basic research in the natural sciences, mathematics, technology, etc., all of which are the joint responsibility of the Minister and of the President of the Academy of Sciences of the GDR, is given by the Academic Councils (Wissenschaftlicher Rat), whose members come from research, applied sciences,

state organs, and economic management bodies. They concentrate mainly on the preparation of research programmes, and the better use of their results.

The Council on Academic Awards (Rat für akademische Grade) which has been described above, gives advice to the Minister on all relevant questions concerning the quality of scientific work.

The Ministerial Advisory Board (Kollegium des Ministers), which is composed of senior officials of the Ministry and senior academic personnel, discusses fundamental problems of higher and technical education, as well as long-term planning and its implementation. In addition, the Board analyses and implements resolutions adopted by the leading bodies of the Socialist Unity Party of Germany and central state organs, hears reports submitted by rectors of universities and university colleges, and examines major draft management decisions.

Monthly conferences which the Minister holds with the rectors of universities and university colleges under his responsibility serve to oversee the implementation of the Ministry's policies.

In the administration, planning, and organization of higher and technical education, the Ministry is also supported by special research institutions which carry out investigations into the development of higher education, and collect and process scientific information in these areas. Among these bodies are the Central Institute of Higher Education in Berlin (Zentralinstitut für Hochschulbildung in Berlin), the Institute of Technical Education (Institut für Hoch- und Fachschulwesen in Karl-Marx-Stadt), all of which cooperate with research groups in the universities, university colleges, and other establishments of educational research, such as the Academy of Pedagogical Sciences.

Directives issued by the Ministry of Higher and Technical Education form the basis for the activities of the other ministries, which in their turn prepare guidelines for their own university colleges and technical colleges to help them fulfil their duties in education, initial and further training and research, to make available the necessary material and financial means in accordance with plan targets, and to ensure the observance of relevant legal provisions. The fulfilment of all these obligations is supervised by the Ministry of Higher and Technical Education.

9.2. **The administration of universities and university colleges**

The management of universities and university colleges is primarily the responsibility of competent and experienced academics who serve as academic administrators. Since in institutions of higher education the fulfilment of administrative duties places great demands on those holding

such positions, at the expense of their own research and teaching commitments, the relevant regulations provide for the regular rotation of the incumbents at intervals.

Universities and university colleges are headed by rectors, who are elected by secret ballot from among the professors by the Academic Council of given institutions for 3-year terms. Reelection is possible. Each election is subject to the approval of the Minister of Higher and Technical Education, who also releases the rector from his duties on the expiration of his term.

The rector is assisted in his administrative work by prorectors, generally the senior prorector and the prorectors for social sciences, education, and training. Depending on the profile of the individual institution, there may be additional prorectors: of natural sciences, technology, and medicine. The prorectors are deputy rectors with strictly defined areas of authority. The first prorector is the permanent representative of the rector for the planning of work and the organization of the academic administration. The prorector for education and training is responsible for all basic matters relating to education, initial and further training, such as admissions, organization of teaching, the learning and living conditions of students, graduate employment and correspondence courses. The duties of the other prorectors include science development, training, education, research and staff development in their respective fields, with the prorector for medicine acting at the same time as director of the medical school of the university in question.

Further governing bodies of the institutions of tertiary education are directorates (Direktorat), respectively for planning and economy, for academic personnel and staff development, for undergraduate and postgraduate training, for research, and international relations. The heads of these directorates, referred to as directors, report to the rector of the university or to the prorectors. Their special duties are connected with the planning, co-ordination, and execution of certain functions in the given institutions and the analysis and control of the results achieved.

The rector, the prorectors, and the directors base their work in administration, planning, and organization on the principle of the democratic participation of all university members. In doing, so they cooperate closely with the leading bodies of the youth organizations and trade union branches at the institution. This system of participation is in accord with the special nature of academic work. The characteristic requirements of academic work and their consequences for science development and the organization of teaching, learning, research, and undergraduate and postgraduate training can only be accomplished when all relevant matters are thoroughly examined and discussed by research groups composed of academics, or of both academics and students. This principle also applies to the other aspects of academic life, such as the discussion of research results and the award of academic degrees.

In this context the Academic Council (Wissenschaftlicher Rat) of a university or university college plays an important role being the body which advises the rector in all academic matters relating to the development of the institution. The Academic Council deals with a wide range of problems : science development, research strategy, academic standards, training and research, development of international co-operation, further training of teaching staff, planning of professorial chairs, and proposals for the appointment of professors and lecturers. The rector is obliged to consult the Council on all major academic issues. The resolutions made by the Council have the character of recommendations.

As regards academic awards, the power of decision is vested exclusively in the Academic Council. Thus the senior doctorate can only be conferred on the basis of a decision taken by the Academic Council or the Senate (Senat), which is the executive organ of the Council.

The Academic Council is composed of eminent representatives of the senior academic staff, of other academics and of students, who are elected at plenary sessions of the departments for terms of three years. It also includes the rector, the prorectors, leading representatives of the university or college branches of the Socialist Unity Party of Germany, the Trade Union and the Free German Youth. The rector acts as chairman of the Council.

In between the plenary sessions of the Council, the Senate exercises the functions of the Council.

In larger universities, the Academic Council may be subdivided into several sections representing different fields of knowledge which by tradition are referred to as faculties. These faculties may be compared to the classes in the academies of sciences. Thus, for example, the Academic Council of the Humboldt University in Berlin consists of the following four faculties : Social Sciences, Mathematics and Natural Sciences, Biological Sciences, and Medicine. The composition of these academic boards ensures adequate analysis and discussion of all academic matters. The faculties award the first doctorate and the "facultas docendi" for the subjects that fall under their respective competences. The faculties are headed by deans (Dekan), who are elected for terms of three years, corresponding to the election terms of the Academic Council. The deans are ex-officio members of the Senate of the Academic Council.

The Social Council (Gesellschaftlicher Rat) advises and assists the Rector in all matters relating to the basic social responsibilities of the university or university college and the requirements of the community in which it is located, especially in cooperation with industrial, commercial and administrative partners, as well as local authorities. Therefore representatives of those institutions which are partners in co-operation in addition to local and central government officials, members

of parliament, and representatives of social organizations are members of the Social Council of a university or university college. The rector and other staff members are elected to the Social Council by the Court (see below) for a term of two years.

The Court of the university or university college (Konzil) is a representative assembly of academics, students, workers and other employees. Its delegates are elected at plenary sessions of the departments (see below). The Court meets once a year to hear the report of the rector on work performed during the preceding year and to discuss the objectives of the institution for the following year together with the ways and means by which they are to be realized.

The basic unit of all academic work performed in a university or university college is the Department (Sektion). A department comprises either all special disciplines belonging to a larger field of knowledge, e.g. the Department of Chemistry, or it covers the requirements of a definite special field, e.g. the Department of Asian Studies.

Within the departments, staff members, students, and other workers and employees have the same rights and duties : participating in the administration, planning, and accomplishment of all other work. It is, of course, the senior academic staff that bear special responsibility for the further promotion of academic life and for the standards of academic work.

The head of a department is referred to as a director. He is recommended from among the professors by the Council of the Department (Sektionsrat) and appointed by the rector. His period of office, as a rule, lasts five years. He is assisted by a deputy director (Stellvertretender Sektionsdirektor) for education and training, and a deputy director for research.

There are basic units within the departments, which, in what follows will be referred to as divisions (Bereich). They usually reflect the subject pattern of a given department. The head of a division (Bereichsleiter) is normally a professor who is assisted by other professors, associate professors, lecturers and other staff members, as well as technical and office staff. The main function of the head of a division is to ensure high standards in teaching, learning, and research, to encourage the all around promotion of academic life, and to further the development of interdisciplinary activities.

The Council of the Department is composed of the director who acts as its chairman, all professors and other staff members, students, workers and office employees, representatives of other departments, social organizations, and cooperation partners. Apart from the director, the members of the Council of the Department are elected for three years at plenary sessions of the department. Within the department, the functions of the plenary sessions parallel those of the Court.

9.3. The administration of engineering and technical colleges

Engineering and technical colleges are essentially administered along the same lines as universities and university colleges and their departments. A technical college is headed by a director. Depending on the size of the institution, he may be supported by either one or two deputy directors, to whom he delegates certain administrative functions either permanently or temporarily. In addition there are, like in universities and university colleges, special advisory bodies, i.e. the Council of the Technical College (Rat der Fachschule) and the Conference of the Technical College (Konferenz der Fachschule), which the director may consult when preparing to make decisions.

The Free German Youth branch of the given institution is represented on these governing bodies. The Council of the Technical College is a representative social body which advises the director on basic matters of educational, academic, political, and ideological work.

The Conference of the Technical College is the plenary session of all college members. It is to the Conference that the director submits his annual report on the fulfilment of tasks and duties and future objectives of the college. The report of the director and the involvement of undergraduates in the organization of training and education are convincing proof that all college members are included in managerial and planning activities.

The basic unit of the engineering and technical college is the Department (Abteilung), in the framework of which teachers, students, and other college employees work together on all matters of administration, planning, and organization of initial and further training. The college departments embrace the staff and seminar groups belonging to the same subject or group of related subjects.

Special aspects of contents, methodology, as well as political and ideological problems of training and education are discussed within the Subject Boards (Fachgruppe).

The Youth Act provides that the directors of engineering and technical colleges, like the rectors of universities and university colleges, discuss all student matters with the leading bodies of the Free German Youth branch and consider their proposals and suggestions.

Taking into consideration all aspects of tertiary education, as they have been discussed so far, one can easily recognize one common characteristic : efficient control of all academic work on the basis of the individual responsibility of the head of a given institution linked with the democratic participation of academics, students, and other college employees in the administration, planning, and organization of academic work, through their respective social organizations, i.e. the college branches of the Free German Youth and the Trade Union.

Further evidence that the development of higher learning is not the exclusive concern of university and college members, but the "increasing responsibility of the whole society for the development of science and higher education" was the Fifth Conference on Higher Education (Fünfte Hochschulkonferenz) held in September 1980. Taking into consideration the discussion which took place in the whole society for several months on a resolution entitled "Tasks of Universities and University Colleges in the Developed Socialist Society", which was adopted by the Politbureau of the Central Committee of the Socialist Unity Party of Germany, about 3,500 delegates discussed the objectives of higher education set for the eighties and early nineties.

10. INTERNATIONAL COOPERATION BY UNIVERSITIES, UNIVERSITY COLLEGES AND TECHNICAL COLLEGES

All institutions of higher education and technical colleges in the GDR maintain a variety of international relations which they constantly strive to extend and improve. They endeavour to become acquainted with the findings and experience gained through advanced scientific work including the organization of teaching and studies and research undertaken in other countries. Not only do German universities learn from the experiences of foreign universities, but they contribute to the social, economic, and cultural progress of the world by their own achievements.

To realize these goals, the GDR promotes cooperation with higher education institutions abroad by integrating international relations in higher education with cultural agreements and exchange programs. In the framework of such international contracts and agreements, very close connections with academic institutions in the Soviet Union and in other socialist countries have been developed during the past few decades. Similar arrangements have also been made with numerous developing countries such as the Democratic People's Republic of Yemen, the People's Republic of Angola, Socialist Ethiopia, etc. and with several other countries in the European region of Unesco such as Denmark, Finland, France, and Austria.

Similarly, the GDR promotes multilateral cooperation within international organizations. Thus it plays an active role as a member of Unesco, involved as it is in numerous commitments and projects of this organization. It is actively supporting Unesco's efforts to develop a convention on the mutual recognition of certificates, credits and academic degrees between the countries of the European region, important for the promotion of international cooperation in higher education.

Particular attention is paid to cooperation with non-governmental international organizations. Thus, 14 universities and university colleges of the GDR belong to the International Association of Universities (IAU) in whose work they take an active part. Universities, university colleges, academies, and libraries of the GDR and individual GDR academics are active members in more than 200 international organizations.

Within this system of multilateral international cooperation, great importance is attached to the direct relations of universities and university colleges with corresponding institutions abroad. At present the institutions of higher education in the GDR have agreements linking them with nearly 300 partners on four continents. These contracts contain arrangements and provisions for cooperation and the exchange of information on teaching and research.

Universities and university colleges pay particular attention to all the obligations arising from cooperation between the GDR and the developing countries. As mentioned above, special emphasis is given, at institutions of higher education in the GDR, to the training of students and candidates for doctoral degrees from these countries. By sending experts and guest lecturers to these countries, the universities, university colleges, and technical colleges help to promote the training of specialists on the spot. Moreover, by providing teaching aids and scientific instruments and by giving direct assistance in the setting up of educational institutions, the GDR contributes to social progress in these countries. At the same time, this cooperation is instrumental in opening up many new possibilities for the cross-fertilization of teaching and research in the GDR in such fields as tropical medicine and agriculture, geology, geography as well as in linguistic, cultural, and regional studies. This is also the guiding principle for the growing scientific cooperation of our institutions of higher education with similar establishments in non-socialist European countries. Based on the above-mentioned international agreements such forms as study visits for young academics, joint research projects, academic colloquia, e.g. between historians in the GDR and France, the exchange of scientific literature and the mutual utilization of information sources have proved to be vehicles for establishing and developing fruitful relations.

11. PROSPECTS

Taking into account the social, economic, and scientific objectives set for the eighties, the task of the next decade has been formulated as follows : "...to mobilize the full potential for increasing the performance of universities and university colleges and to make more efficient use of their possibilities in the training of specialists in disciplines of fundamental importance, in the overall development of science and in the interdisciplinary approach to scientific problems". For this general objective to be judged adequately it should be considered that the envisaged performance targets will go hand in hand with considerable changes in the structure of academic output.

First, there will be no increase in the number of university and college graduates ; on the contrary, the later eighties will see a slight decline. Nevertheless, by about 1990 one out of four people employed in the national economy of the GDR will have graduated from a university or a technical college. This "peculiar" characteristic results from the specific present day composition of our labor force in terms of qualification levels, the age structure of present day university and college staffs, and other predictable demographic developments.

Second, the number of graduates from further training courses, who already in 1980 represent a high proportion of the university and college graduates, will rise further through the eighties because of the growing social and individual demand for education.

Third, undergraduate and postgraduate training will be continued at the level achieved so far, and in some subjects there will even be an increase in order to cope with the crucial tasks of the national economy as a whole and science development in particular.

Finally, universities, university colleges, and technical colleges will have to solve major problems in the training of overseas students coming from the developing countries and the young nation states of the Third World.

It seems to be evident that the expansion of the availability of higher education will lead to a significant change in the structure of provision in those disciplines in which the potential for research is growing. Rather than leading to the expansion of the teaching staff, this potential, in order to be realized, will lead to an intensification of academic work on the part of the existing staff.

Thus, the fundamental program for the future development and organization of tertiary education can be characterized in the following way :

1. The principal objective will be to provide thorough and broadly-based theoretical and practical training for everybody. To reach this objective universities and university colleges will have to make even more efficient use of all the possibilities they have for the promotion of the individual talents and abilities of students.

2. Tertiary education is to be given a higher degree of flexibility in order to meet the constantly changing requirements of social, economic, as well as scientific and technological, developments. This aim can be reached by broadening and deepening the theoretical and methodological foundation of training and by providing more room for special courses (e.g. by offering a larger number of options, by promoting undergraduate research work, etc.) and by diversifying the whole system of further training. As there is still much unused potential in current curricula, present day higher education can be further differentiated to provide for the whole range of individual talents, aptitudes, inclinations, and interests.

3. A comprehensive system of complementary modules in initial and further training is to be organized, comprising also part-time studies, in order to satisfy the increasing social and individual demands for higher education that go beyond mere career oriented qualifications.

4. The research potential is to be further expanded on the basis of long-term concepts for natural sciences, technology, medicine, agriculture and social sciences, especially in basic research. In this process, increased emphasis will be placed on fields of knowledge which have particular relevance to innovation and the solution of problems relating to social, economic, and cultural developments, and interdisciplinary activities.

5. The system of higher education is to be improved by further developing the effective network of institutions that enable all material, financial and manpower resources to be used in a most efficient manner. In this connection, cooperative links with the academies of sciences and the research establishments of large factories and industrial combines will be of increasing importance.

12. LIST OF ANNEXES

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Fig. 1

The Integrated Socialist Education System in the GDR (Excluding further training possibilities)

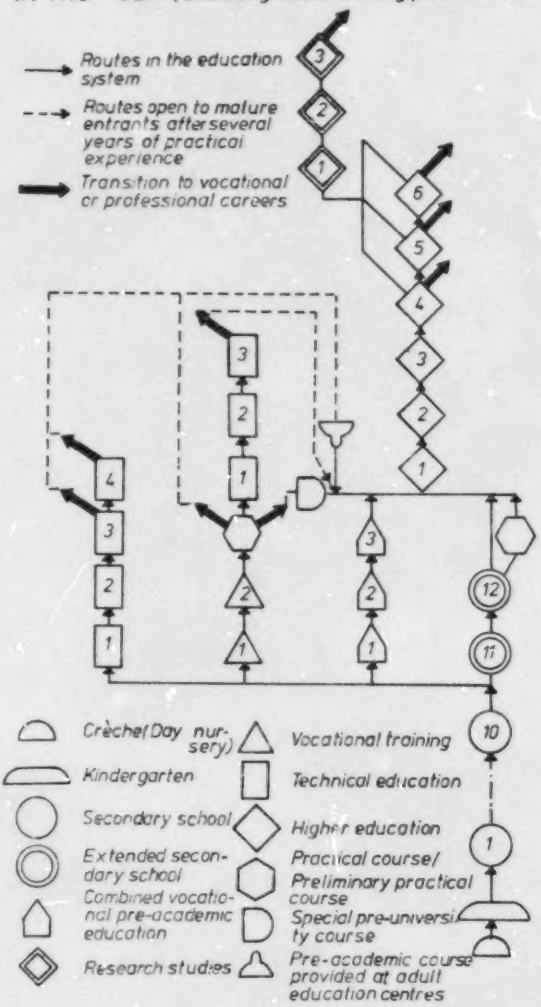


Fig. 2

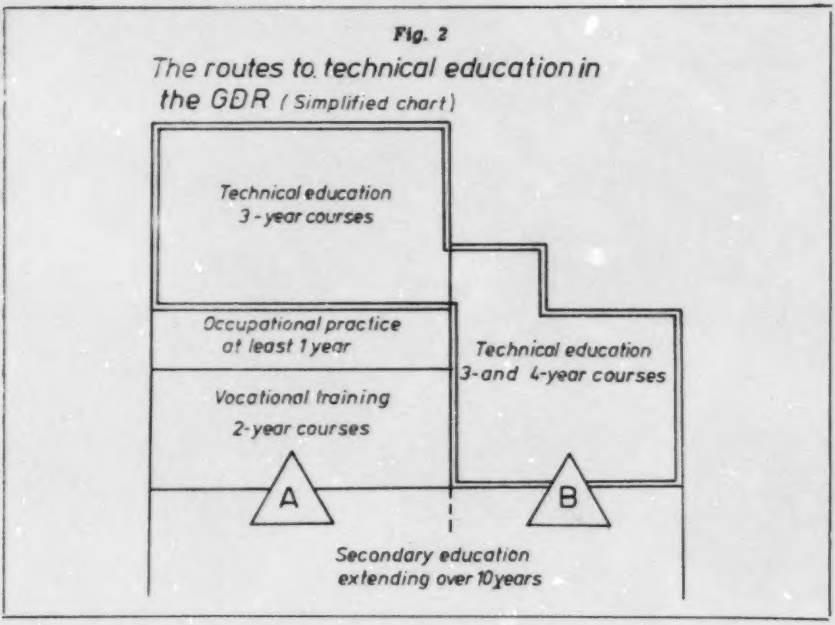

The routes to technical education in the GDR (Simplified chart)
Technical education 3-year courses
Occupational practice at least 1 year
Vocational training 2-year courses
Technical education 3- and 4-year courses
A
B
Secondary education extending over 10 years

Fig. 3

Timetable for the curriculum of : Livestock farming (full-time course)

Nr.	Subject area	Hours total	Hours per week/semester							
			1.S 16 W	2.S 15 W	3.S 16 W	4.S 14 W	5.S 16 W	6.S 17 W	7.S *	8.S 8 W
1.	Marxism-Leninism	(300)								
1.1.	Dialectic and historical materialism	84	3	2,5						
1.2.	Political economy	100			4	3				
1.3.	Scientific communism/ Outline of the history of the working-class movement	116					4	3		
2.	Agricultural economics	150			2	3	2	2,5		
3.	Socialist enterprise management	334			3	4	5	6	3	
4.	Fundamentals of socialist labour science	30				1	1			
5.	Agrarian history	30	2							

Nr.	Subject area	Hours total	Hours per week/semester							
			1.S 16 W	2.S 15 W	3.S 16 W	4.S 14 W	5.S 16 W	6.S 17 W	7.S *	8.S 8 W
6.	Economic and labour law				2					
7.	Fundamentals of mathematics	45	2,5							
8.	Mathematical statistics and biometry	60	1	3						
9.	Methods of mathematical economics	60				4				
10.	Electronic data processing	45		3						
11.	Cybernetics	15	1							
12.	Morphology	60	3,5							
13.	Chemistry/Biochemistry	130	5	3						
14.	Physiology	80	2	4						
15.	Microbiology	20	1							
16.	Animal hygiene	55		4						
17.	Sanitary check-ups	40				2,5				
18.	Building technology	30		2						
19.	Machine technology	115			3		2	2		
20.	General technology	145	2				3	4		
21.	Animal breeding	(490)								
21.1.	Domestic animal genetics and genetic breeding	180		2	5	5				
21.2.	Cattle breeding	120					5			5
21.3.	Pig breeding	100					2	2		5
21.4.	Sheep breeding	40						2,5		
21.5.	Poultry and small livestock breeding	50						3		
22.	Domestic animal feeding	(240)								
22.1.	Animal feeding	90			5,5					
22.2.	Technology of animal feeding	90					3	2,5		
22.3.	Feeding stuff	60				4				
23.	Feeding stuff production	60			4					
24.	Stock and dairy farming	25				2				
25.	Introduction into cultural theory and aesthetics	15					1			
26.	Health and labour safety ; fire protection	25						1,5		
27.	Russian	80	2	2	1					
28.	Second foreign language	80	2	2	1					
29.	Sports	205	2	2	2	2	2	2		
30.	Introduction to study methods	15	1							

Nr.	Subject area	Hours total	Hours per week/semester							
			1.S 16 W	2.S 15 W	3.S 16 W	4.S 14 W	5.S 16 W	6.S 17 W	7.S *	8.S 8 W
31.	Time at the department's disposal **	165				1	1	1		15
	Hours total	3 174	30,0	29,5	32,5	31,5	31,0	32,0	3,0	25,0

Fig. 4

Timetable for the curriculum of: "Technology of metal processing industries"

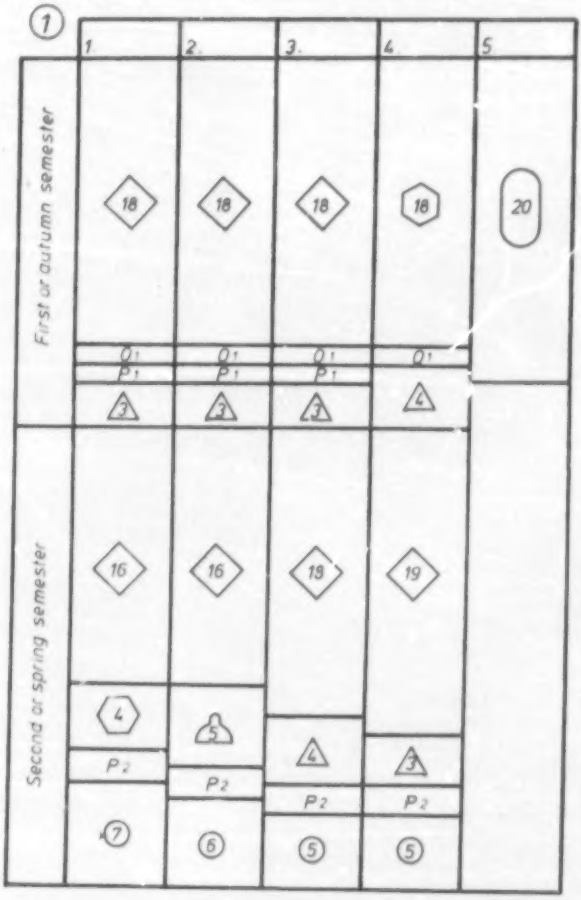
serial number	Subject area	Teaching time for subject area	Classes (in hours) half year (semester)					
			1	2	3	4	5	6
1	Fundamentals of Marxism-Leninism	306	90	90	36	36	54	
2	German	36	36					
3	Cultural theory and aesthetics	36		36				
4	Russian	108		36	36	36		
5	Sports	180	36	36	36	36	36	
6	Mathematics	306	108	90	72	36		
7	Physics	162	90	72				
8	Chemistry	72	36	36				
9	Soc. labour science	54			36	18		
10	Soc. enterprise management studies	162			54	36	72	
11	Automation technology	108				36	72	
12	Electrical machines and drives	72				36	36	
13	Components of machines	144			72	72		
14	Electronic data processing	72	36	36				
15	Information, documentation and standardization	36	36					
16	Technical mechanics	198	90	72	36			
17	Materials engineering	90	54	36				
18	Production engineering	306		36	108	72	90	
19	Machine tools	144		36	36	36	36	
20	Manufacturing testing	72			36	36		
21	Design of supplementary instruments of production	252	36	36	36	36	72	
22	Technological preparation of investments	108				36	72	
23	Technological preparation of production	216			54	54	108	
	Total teaching time for subject-area groups	3.240	648	648	648	648	648	
	Practical course	915						915

* The seventh semester is devoted to a period of practical work in posts of responsibility ('Leitungspraktikum').

** This time is to be used for further specialization in the above-mentioned or additional subject areas. It is allocated by the Director (head of department) on the basis of recommendations of the departmental council.

Fig. 5

Schematic breakdown of course pattern in a 4-1/2 year (9 Semester) higher education course (figures refer to weeks)



Simplified Scheme of the Administrative Structure of a University

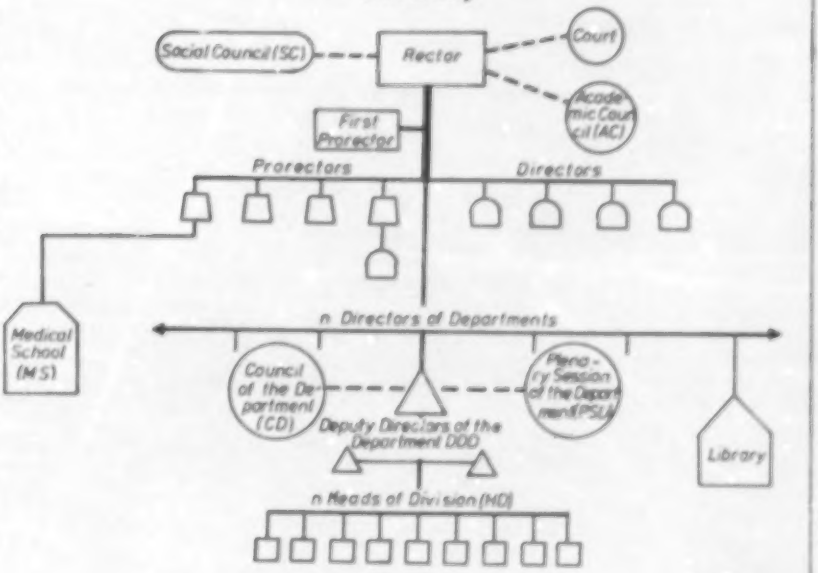


Fig. 6

Simplified Scheme of the Administrative Structure of a Technical College

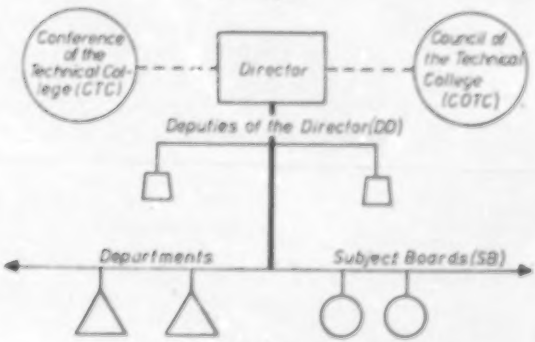


Fig. 7

13. LIST OF HIGHER EDUCATION INSTITUTIONS IN THE GDR*

THE FOLLOWING INSTITUTIONS COME UNDER THE MINISTRY OF HIGHER AND TECHNICAL EDUCATION, DDR — 1020 BERLIN, MARX-ENGELS-PLATZ 2 :

1. Humboldt-Universität zu Berlin
   1086 Berlin, Unter den Linden 6
   Tel. : 20 30
2. Karl-Marx-Universität Leipzig
   7010 Leipzig, Karl-Marx-Platz 10
   Tel. : 71 90
3. Martin-Luther-Universität Halle-Wittenberg
   4020 Halle, Universitätsplatz 10
   Tel. : 83 20
4. Friedrich-Schiller-Universität
   6900 Jena, Goetheallee 1
   Tel. : 8 28 20
5. Wilhelm-Pieck-Universität Rostock
   2500 Rostock, Universitätsplatz 1
   Tel. : 36 90
6. Ernst-Moritz-Arndt-Universität
   2200 Greifswald, Domstraße 11
   Tel. : 6 30
7. Medizinische Akademie "Carl Gustav Carus"
   8019 Dresden, Fetscherstraße 74
   Tel. : 6 80

* Excluding higher education institutions of the army and security forces and social organizations.

8. Medizinische Akademie Erfurt
5000 Erfurt, Nordhäuser Straße 74
Tel. : 5 00

9. Medizinische Akademie Magdeburg
3010 Magdeburg, Leipziger Straße 44
Tel. : 6 70

10. Technische Universität Dresden
8027 Dresden, Mommsenstraße 13
Tel. : 46 30

11. Bergakademie Freiberg
9200 Freiberg, Akademiestraße 6
Tel. : 5 10

12. Technische Hochschule "Otto von Guericke" Magdeburg
3010 Magdeburg, Boleslav-Bierut-Platz 5
Tel. : 59 20

13. Technische Hochschule Karl-Marx-Stadt
9000 Karl-Marx-Stadt, Straße der Nationen 62
Tel. : 66 80

14. Technische Hochschule Ilmenau
63 Ilmenau, Ehrenberg Block G
Tel. : 7 40

15. Technische Hochschule Leipzig
7010 Leipzig, Karl-Liebknecht-Straße 132
Tel. : 39 80

16. Technische Hochschule "Carl Schorlemmer" Leuna-Merseburg
4200 Merseburg, Geusaer Straße
Tel. : 4 60

17. Hochschule für Verkehrswesen "Friedrich List"
8010 Dresden, Friedrich-List-Platz 1
Tel. : 46 20

18. Hochschule für Architektur und Bauwesen
5300 Weimar, Geschwister-Scholl-Straße 8
Tel. : 7 30

19. Ingenieurhochschule Köthen
4370 Köthen, Bernburger Straße 52—57
Tel. : 6 70

20. Ingenieurhochschule Zittau
8800 Zittau, Theodor-Körner-Allee 16
Tel. : 6 10

21. Ingenieurhochschule Wismar
2400 Wismar, Philipp-Müller-Straße
Tel. : 5 30

22. Ingenieurhochschule Mittweida
9250 Mittweida, Platz der DSF 17
Tel. : 5 80

23. Ingenieurhochschule Zwickau
9500 Zwickau, Dr.-Friedrichs-Ring 2 a
Tel. : 8 23

24. Ingenieurhochschule für Seefahrt Warnemünde-Wustrow
2530 Warnemünde, Richard-Wagner-Straße
Tel. : 5 70

25. Ingenieurhochschule Dresden
8019 Dresden, Hans-Grundig-Straße 25
Tel. : 6 07 50

26. Ingenieurhochschule Cottbus
7500 Cottbus, Karl-Marx-Straße 17
Tel. : 6 90

27. Ingenieurhochschule Berlin-Wartenberg
1127 Berlin
Tel. : 4 81 50

28. Hochschule für Ökonomie "Bruno Leuschner"
1157 Berlin-Karlshorst, Hermann-Duncker-Str. 8
Tel. : 50 40

29. Handelshochschule Leipzig
7010 Leipzig, Markgrafenstraße 2
Tel. : 7 96 30

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8250 Meißen, Freiheit 13
Tel. : 81 21

31. Hochschule für Landwirtschaft und Nahrungsgüterwirtschaft Bernburg
4350 Bernburg, Mitschurinstraße 28
Tel. : 82 31/82 39

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2600 Güstrow, Goldberger Straße 12
Tel. : 5 40

33. Pädagogische Hochschule "Clara Zetkin" Leipzig
7031 Leipzig, Karl-Heine-Straße 22 b
Tel. : 4 97 70

34. Pädagogische Hochschule "Nadeshda Konstantinowna Krupskaja" Halle
4020 Halle, Kröllwitzer Straße 44

35. Pädagogische Hochschule "Erich Weinert" Magdeburg
3010 Magdeburg, Brandenburger Straße 9
Tel. : 3 36 66

36. Pädagogische Hochschule "Karl Liebknecht" Potsdam
1500 Potsdam, An. Neuen Palais
Tel. : 91 00

37. Pädagogische Hochschule "Karl Friedrich Wilhelm Wander" Dresden
8060 Dresden, Wigardstraße 17
Tel. : 5 99 00

38. Pädagogische Hochschule "Dr. Theodor Neubauer" Erfurt/Mühlhausen
5010 Erfurt, Nordhäuser Straße 63
Tel. : 53 60

39. Pädagogische Hochschule "Ernst Schneller" Zwickau
9500 Zwickau, Scheffelstraße 39
Tel. : 74 80

40. Pädagogische Hochschule "Wolfgang Ratke" Köthen
4370 Köthen, Lohmannstraße 23
Tel. 6 90

THE FOLLOWING INSTITUTIONS COME UNDER THE MINISTRY OF CULTURE, DDR — 1020 BERLIN, AM MOLKENMARKT 1/2 :

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1080 Berlin, Otto-Grotewohl-Straße 19
Tel. : 22 02 626

42. Hochschule für Musik "Felix Mendelssohn Bartholdy"
7010 Leipzig, Grassistraße 8
Tel. : 31 14 02

43. Hochschule für Musik Dresden "Carl Maria von Weber"
8010 Dresden, Blochmannstraße 2—4
Tel. : 69 02 13

44. Hochschule für Musik "Franz Liszt" Weimar
5300 Weimar, Platz der Demokratie 2—3
Tel. : 52 41

45. Kunsthochschule Berlin
1120 Berlin-Weißensee, Straße 203
Tel. : 5 65 40 61

46. Hochschule für bildende Künste
8019 Dresden, Güntzstraße 34
Tel. : 69 01 12

47. Hochschule für Grafik und Buchkunst
7010 Leipzig, Dimitroffstraße 11
Tel. : 3 40 66

48. Hochschule für industrielle Formgestaltung
Burg Giebichenstein
4020 Halle, Neuwerk 7
Tel. : 38 06 61

49. Theaterhochschule "Hans Otto"
7010 Leipzig, Schwägrichenstraße 3
Tel. : 3 41 51

50. Hochschule für Film und Fernsehen der DDR
1502 Potsdam-Babelsberg, Karl-Marx Straße 33—34
Tel. : 7 89 81

51. Institut für Literatur "Johannes R. Becher"
7010 Leipzig, Karl-Tauchnitz-Straße 8

THE FOLLOWING INSTITUTION COMES UNDER THE STATE SECRETARIAT OF PHYSICAL CULTURE AND SPORTS, DDR — 1080 BERLIN, MOHRENSTRASSE 6 :

52. Deutsche Hochschule für Körperkultur
7010 Leipzig, Friedrich-Ludwig-Jahn-Allee 59

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53. Akademie für Staats- und Rechtswissenschaft der DDR
1502 Potsdam-Babelsberg, August-Bebel-Straße 89
Tel. : 7 67 01

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